



The Resonator

Official Newsletter of The Fair Lawn (NJ) Amateur Radio Club

Volume 8, Number 1

www.FairLawnARC.org

January 2023.

Member Profile

NAME: Victor Miller CALL: WA2RCC

What do you do/what did you do for a living?

I am an Electrical Engineer and I've worked at BAE – British Aerospace Electronics – Wayne, NJ with 42 years of service. BAE is formerly Singer – Kearfott Electronics/Avionics for Aircraft.

I am MIT trained as an Electrical Engineer and hold a BSEE, MSEE and am PE (EE) licensed.

How did you get interested in ham radio?

I first got interested in Summer Camp in the Catskills and made my first contact there. It was Timber Lake Camp. Later I received my Novice license and learned Morse Code.

I later served as Ham Radio counselor in subsequent summers.

Continued on next page.

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From The President

Dear fellow members of FLARC,

It's a tremendous honor to serve as President of the Fair Lawn Amateur Radio Club – a great club dedicated to a great hobby and community service with a great history and a great future. I'm both humbled and inspired by our roster of past presidents, including our outgoing president, Nomar NP4H.

Nomar's depth of knowledge and experience with the art and science of radio, his wonderful social and administrative skills and his love for the FLARC family have had a positive effect that will endure long into the future. I know I speak for all members in expressing gratitude to Nomar for all he has done and appreciation in advance for his ongoing contributions as a beloved member and major player. We also wish him all the best as he starts a new year as Vice Director of the ARRL Hudson Division.

I want to thank everyone who helped us kick off the New Year with a successful January business meeting. Your generous support was greatly appreciated, and your focus as we covered a lot of ground was key.

We have a great year ahead of us. Here are some upcoming events, programs and news items: First, the last weekend in January will be packed with two major events. The first is Winter Field Day (WFD) on January 28-29. Noel W2MSA returns for his second year as WFD Chairman on the heels of his success as Chairman of Field Day 2022. Plans are well under way, so be sure to reach out to Noel with your ideas and to confirm your participation.

The second major event during the last weekend of January is the start of 3Y0J, the Bouvet Island DXpedition. Bouvet Island is the most remote island in the world, situated in the South Atlantic Ocean between Antarctica and South Africa. The 3Y0J crew is currently estimating that they'll arrive at their destination on January 25-28 where they will be operating for roughly 22 days, weather permitting, minus setup and teardown time. Van W2DLT, Steve KA2YRA and James KB2FMH are heading up FLARC's participation in this once-in-a-lifetime DX event. Don't miss James KB2FMH's Kawfee Tawk™ presentation on 3Y0J this Friday, January 13 at 7:30. James has been heavily involved in preparations for this event and will be

Continued on next page.

Member Profile, continued

What parts of the hobby most interest you?

I have always been fascinated (even when a kid) by ability to communicate – to send and receive – “reach out” using signals – over thousands of miles – without physical contact! It is still amazing. I mostly operate Long Distance (DX) on HF bands; primarily CW mode on the 80, 40, 20, 15 meter bands.

I also do 2 meter repeater and direct (Simplex) on 146.520 for Local QSOs.

How did you first find out about FLARC?

What are your impressions of the club?

Van W2DLT knocked on my door in Fair Lawn about 12 years ago and asked me to join.

What do I think? FLARC is a Great Ham Radio Club – so much membership and participation -- so much Ham related activity.

What else can you tell the club about yourself and/or ham radio?

I have done much Antique Radio restoration - 1930s type. I have done more than 60 large console radios including Zenith, Philco, RCA, Atwater-Kent, Brunswick, Emerson, and many more.

I am also into RDF – Radio Direction Finding - RDF (rotating loop type) DF Receivers. I also do a lot of broadcast band / AM Band DXing.

What other ham related clubs or organizations do you belong to?

None, just FLARC.

By the way, the call is “Royal Crown Cola.”



Victor WA2RCC

From The President, continued

operating from a Scout camp in the Catskills from February 8 through February 16. Some of us plan to visit him there. Let us know if you want to join us. The Scouting events James has pulled FLARC into have been great experiences. Van will be opening the club for this event, so there will be plenty of opportunities to grab this extremely rare and difficult DXCC entity for your own log.

Yes, you read that last sentence correctly — your own log! We're implementing a new policy that permits the use of personal call signs under certain conditions while operating on club premises. This is huge! Many thanks to W2NPT's trustee, Paul W2IP, who has approved this major shift in club policy, and to Steve KA2YRA for bringing a request for this change to the Board. We're working on the language of this new policy which we will publish soon.

Another big news item for 2023 is our new Youth Committee under the leadership of Lee KD2DRS. Lee has a tremendous vision for bringing amateur radio to young people and we look forward to seeing that vision come to fruition.

Our first big youth event for this year will be our presentation at Super Science Saturday on March 4 from 10:00 AM to 12:35 PM at Ridgewood High School. This event is an annual highlight on the FLARC calendar, and this is the first time since 2019 that it will be held in person. Lee KD2DRS and Nomar NP4H have begun planning. Please contact them if you would like to be involved.

Also in the news is our appointment of Bruce NJ2BK as Chairman of the Grant Committee. Bruce put together a tremendous application for the first round of the ARRL Club Grant Program that was rejected for reasons we couldn't have foreseen. We're looking forward to submitting a revised application when the League announces the next round of grants, and Bruce will lead the effort.

Our Special Interest Groups (SIGs) are active, our club is open on Tuesdays and Fridays (please watch your email for announcements about club openings), our Kawfee Tawks are going strong as are our weekly nets, and our major annual events like Field Day, Hamfest and Auction will be here sooner than we think. So, there are many opportunities to have fun this year. Let's continue to be safe and use good judgment regarding health and safety.

Thanks again for the opportunity to serve as FLARC president. If you haven't been active with the club in a while, I encourage you to come and get involved. I hope to see you on the air and/or in person soon!

73, Dave KD2JIP
FLARC President

Winter Field Day Is January 28-29th



Neither fre
keep FLARC
atever will
ating again
in Winter Field Day at Memorial Park.

We've been lucky weather-wise in past years and we trust that there will be some operators intrepid enough to fend off the cold overnight in the tent and (maybe) trailer and get us some bonus points for operating outdoors and above the Mason-Dixon line.

Check with the club officers about the details and find out more at the January business meeting.

Also see more updated details on page 5.

2023 Dues Are Due

Dues for 2023 will be accepted by the club starting on December 2nd with the 2022 Annual Meeting. There are no changes to dues for the upcoming year. Cutoff date is March 31, 2023.

Please make checks payable to:
"Fair Lawn Amateur Radio Club"
and send them to:

Bruce F Kalogera NJ2BK
163 Meadow Lane
Secaucus, NJ 07094

Please include a member application form [pg.65] with your check regardless of your member status.
It can be found near the back of this newsletter.



2023 ARRL NNJ Section Officials

Section Manager	Bob Buus	W2OD
Club Coordinator	Lee Smith	KD2DRS*
Technical Coordinator	Alan Wolke	W2AEW
Traffic Coordinator	James Kutsch	KY2D
PR Coordinator	Ed Efchak	WX2R*
Emergency Coordinator	John Wyatt	W2VTW
Youth Coordinator	Scott Wylie	WY1LIE

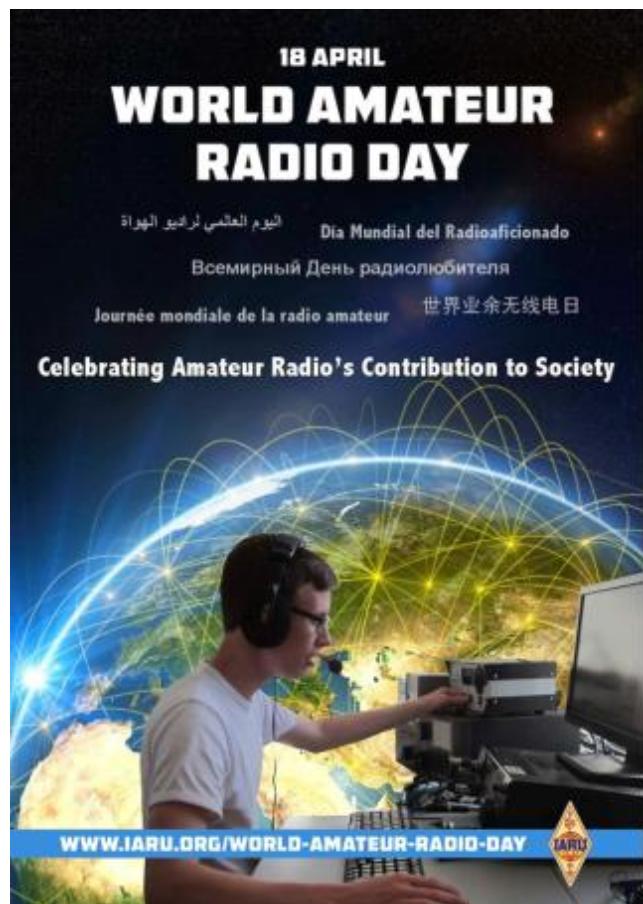
*FLARC members

World Amateur Radio Day Is Coming! • Tuesday, April 18th!

The clubhouse will be open from 2PM until closing for this annual operating event (not a contest). We are seeking volunteer operators and may look to set up a schedule so we can keep the station on the air.

This is a casual event to promote amateur radio in recognition of the creation of the IARU (International Amateur Radio Union) in Paris in 1925.

The club will follow all borough COVID-19 requirements for this event.



The Fair Lawn Amateur Radio Club

Why Is FLARC New Jersey's Most Exciting Radio Club?

Events

- Field Day
- Winter Field Day
- World Amateur Radio Day
- Portable Days
- Earth Day
- Special events
- Memorial Day parade
- Independence Day fireworks
- Fair Lawn Street Fair(s)
- Ham fests/Auctions
- Foxhunts
- Contests
- Field trips
- Annual holiday party
- ...and more!



There Is Something Every Night At FLARC!

- Monday: Near and Far Net
- Tuesday: DMR Net
- Tuesday: "Pop Up" Open House/Open Zoom
- Wednesday: ARES/RACES Net
- Wednesday: Health and Welfare Net
- Thursday: Tech Net (with BARA)
- Friday: Kawfee Tawk Speaker Series (monthly)
- Weekends: POTA and other station activations

There is Something for Everyone at FLARC!



Special Interest Groups:

- Portable Ops: POTA, SOTA, etc.
- DX: Chase the rare ones
- Digital Voice: DMR and other digital modes
- FT8: And other WSJT modes
- Satellite: Also, for weather GPS interests
- Monitoring: SWL and other general listening
- And others to come!!



Plus:

- Monthly VE Testing
- An active repeater – W2NPT (linked with NJ2BS)
- New equipment in the shack
- New antennas on the roof
- A five-position operating clubhouse
- Over 72 consecutive months of speaker programs to learn and grow.

That's why FLARC is the best club around!!

Join us in our in-person and in our Zoom Room for more activities, speakers, and projects to come!

FLARC is following Covid-19 government guidance closely and all events and activities will adhere accordingly to the latest advice.

The Club Fair Lawn ARC is the fastest growing ham club around, with five operating positions in a permanent clubhouse. Visitors and guests are always welcome. The club is open every Friday night, except when there is a Kawfee Tawk scheduled, from NLT 6:30 PM. Business meetings are the first Friday of the month at 7:30PM.

2023 Officers, Committees and Assignments

President	David Corsello	KD2JIP
Vice President	David Gotlib	KD2MOB
Treasurer	Bruce Kalogera	NJ2BK
Secretary	Lee Smith	KD2DRS
Trustee	Fred Wawra	W2ABE
Trustee	Brian Cirulnick	KD2KLN
Trustee	Steve Rosman	KA2YRA
<i>Field Day</i>	Noel Pagan Steve Rosman Steve Wraga	W2MSA KA2YRA WA2BYX
<i>Member Services Health & Welfare</i>	Judith Shaw	KC2LTM
<i>Marketing</i>	Ed Efchak Nomar Vizcarrondo Jim Cooper Dave Corsello (ex officio)	WX2R NP4H W2JC KD2JIP
<i>Program</i>	Ed Efchak	WX2R
<i>Video/YouTube</i>	Thom Guida	W2NZ
<i>Social Media</i>	Thom Guida Dave Marotti	W2NZ NK2Q
<i>Photographer</i>	Giovanni Lucero	K2GIO
<i>Community Relations</i>	Gene Ottenheimer Dave Gotlib Ed Efchak	WO2W KD2MOB WX2R
<i>Hamfest and Auction</i>	Gene Ottenheimer Bill Leger Bruce Kalogera	WO2W WA2WL NJ2BK
<i>Education</i>	Bill Kelly Earle "Skip" Barker Paul Brennan	NB1LL KD2BRV N6FB
<i>Net Scheduler</i>	Brian Cirulnick	KD2KLN
<i>Contests</i>	Lowell Vant Slot	W2DLT
<i>FLARC Historian</i>	Fred Belghaus	W2AAB
<i>Webmaster</i>	Jim Cooper	W2JC
<i>Technical</i>	Jim Cooper Paul Cornett Brad Kerber Fred Wawra	W2JC W2IP KM2C W2ABE
<i>RACES/ARES Director</i>	Dave Gotlib	KD2MOB
<i>RACES/ARES Liaison</i>	Steve Wraga	WA2BYX
<i>Newsletter Editor</i>	Ed Efchak	WX2R
<i>Newsletter Publisher</i>	Jim Cooper	W2JC
<i>Quartermaster</i>	Brian Cirulnick	KD2KLN
<i>W2NPT Trustee</i>	Paul Cornett	W2IP
<i>NK2H Trustee</i>	Ed Efchak	WX2R

President serves as ex officio to all committees

Winter Field Day Is Happening!!

Noel W2MSA reports that Winter Field Day is a GO! January 28 and 29th at Memorial Park.

Here is the update:

LOCATION:

The permit for Memorial Park has been approved.

1. **SHELTER:** We will be using the Ridge OEM inflatable shelter. It will be delivered and setup for us on Saturday 28th at 8:30am and they will pick it up on Sunday 29th around 2PM
2. **POWER/HEAT:** The inflatable shelter comes with a generator and heat.
3. **HEAT:** Gene WO2W will loan us two portable heaters which are safe for indoor use, he will also be donating propane tanks for this event.
4. **POWER:** Brian KD2KLN and I inspected the Honda generator, we replaced the oil, spark plug and cleaned the air filter, it started up with no problem. Jim N2JLF has also offered his portable generator for this event.

5. **PCs/NETWORK:** we will be using two of the FLARC laptops which Dave KD2JIP and Jim W2JC will configure for this event.

6. **STATIONS:** we will attempt to setup two HF stations, one for phone and one for CW. If anyone would like to setup a digital station they can volunteer to set it up from A-Z.

7. We are registered as a club participant on the WFD site map.

Now all we need is good (!) weather and more volunteers.

We have eight as of The Resonator deadline:

Noel W2MSA

Nomar NP4H

Mike KD2YEW (overnight)

Steve KA2YRA

Dave KD2JIP (possible overnight)

James KB2FMH

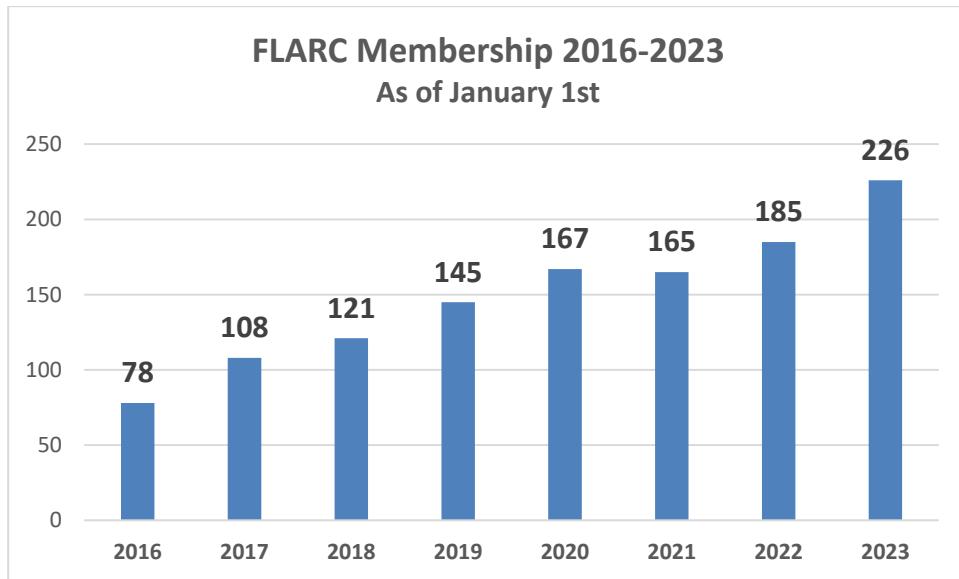
Fred W2AAB and

Jim N2JLF.

FLARC Hits a New Membership Milestone!

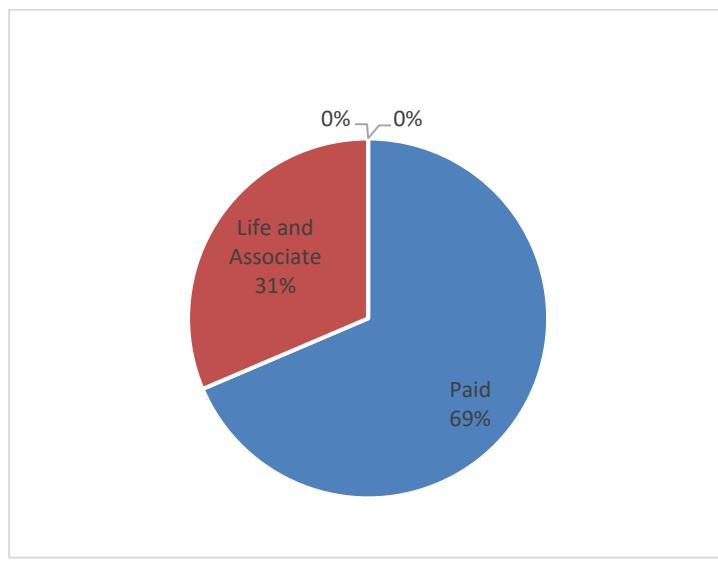
FLARC recorded a new milestone with the New Year as the club reported a record membership of 226; an increase of an amazing 41 new members or 22% over the start of 2022.

Treasurer Bruce Kalogera NJ2BK reported the data with his final 2022 roster and it should be noted that, with the exception of the COVID-19 pandemic year of 2020, the club has shown a consistent growth in membership since the 60th anniversary year of 2016.



It should be noted that “membership” is defined as paid, life and associate members. To end 2022, the roster showed 155 paid members and 71 Life and Associate members. Associate members must be residents of Fair Lawn whose membership is free but who hold no voting rights in the club.

Past membership surveys indicate that the membership wants to grow in both size and reputation and the former is certainly true. An increase in 41 members in one year is more than many local clubs have on their entire roster. A tribute to all FLARC members for their continued support of the club.



2023 FLARC Kawfee Tawk Programs



Hidetsugu Yagi's 130th Birthday Google Doodle

Follow FLARC ON THE WEB

Facebook: <http://facebook.FairLawnARC.org>

Twitter: @FairLawnARC

Blog: <http://blog.FairLawnARC.org>

Youtube: <http://youtube.FairLawnARC.org>

Website: <http://FairLawnARC.org>

SIG Group Participation as of December 30, 2022

Here is an update on the roster of Special Interest Groups...many groups have increased in size during the last month. About 45% of all members have joined at least one group.

EMCOMM	12
Contesting	14
Digital Voice	31
Monitoring	28
DX	19
FT8	24
Satellite	19
Portable Ops	47
Raspberry pi	7
Direction Finding (NEW)	5
FLARC General	166

Sign up for a group... or ...
why not start one?

Contact webmaster@FairLawnARC.org
if you would like to start a new
Special Interest Group.

The Clubhouse Is Open Three Fridays In January!!

Date	Clubhouse Status
January 6	OPEN – Business Meeting
January 13	CLOSED – Kawfee Tawk
January 20	OPEN
January 27	OPEN



**And Stand-by for Other
Open Days or Evenings!**

**Pop-Up Tuesdays are now in-person at the club
as well as in the Zoom-room.**

The club will follow all borough COVID-19 requirements for these events.



Pop-Up Tuesday informal "ragchew"
TONIGHT at 19:00 EDT in ZOOM-room
and live **AT THE CLUB**.



AMATEUR RADIO TESTING BY THE FAIR LAWN AMATEUR RADIO CLUB

On January 21, 2023 the Fair Lawn Amateur Radio Club will continue amateur radio test sessions on a modified basis.

These sessions will be held at the **Fair Lawn Amateur Radio Club**.

The location is at 10-10 20th Street, Fair Lawn, NJ

The session starts at 9:15 AM.

A document will be provided to you prior to the date to indicate the time assigned to you.

You must have it with you to take the test.

Prior to Testing:

Send an email to wo2w@arrl.net requesting to book your spot.

PRE-REGISTRATION IS REQUIRED - NO WALK-INS ACCEPTED.

Upon Arrival:

You must have a government issued ID such as a valid driver's license or passport, a filled out Form 605, and **3 filled out copies of the FCC CSCE form**.

Please Bring With You:

You MUST bring and WEAR personal PPE items including a face mask.

2 pens and 2 pencils. None will be provided to you, due to possible virus transmission.

Your FRN number, and (if licensed) a copy of your ham license or a valid CSCE (Certificate of Successful Completion Exam).

Additionally, the **\$15.00 exam fee**. This is payable in cash (exact amount is a must).

For information and scheduling, please contact:

Gene/WO2W

WO2W@arrl.net

Visit our website at www.FairLawnARC.org and <http://bit.ly/FLARC-Testing>

v201226-01



James Gallo KB2FMH Discusses

"It's More Than Just Another Spot on The Cluster — What It Takes to Produce A DXpedition"

FLARC 2023 Kawfee Tawk™ Series

With the Bouvet Island DX-pedition just ahead of us, our January presentation provides a unique insight into the working parts of our hobby. James Gallo KB2FMH, who recently returned from the K7K DXpedition to the Aleutian Islands, will provide a firsthand account of what it takes to get a station on the air in less than perfect conditions.

Most people who chase DX don't see past the spot on the myriad of telnet clusters on the internet. They see a call at a location they want a contact with and once in the log, they look for the next – never giving thought to how those people got to where they are operating from. Sure, most DXCC entities are just other populated places outside their own country such as in Africa, Europe or Asia or some Island nation where lots of people, and some Hams live. But there are those few that are otherwise remote, desolate, and uninhabited.

It's those places that require substantial time, money and sometimes Guts to get to and set up a temporary radio station for a short time. Not all are akin to going to a Caribbean Island or small village in some obscure country with electricity, running water and soft beds. Many are in extreme locations with no amenities, harsh weather, and rough terrain. K7K on Kiska Island in the Bering Sea was one of those — one of the most extreme locations to get to, land on, set up a camp and live for a week while hoping the volcano a few miles up the island did not decide to come to life.

This video program will be held on Friday, January 13, 2023, beginning at 7:30 PM EST.

The program will last about an hour and will include an opportunity for questions and comments. The link to the presentation can be found here:

Join Zoom Meeting

<https://us02web.zoom.us/j/89394544016?pwd=RTk5WXBNa0pPSjJMTTRQSFlmRDdPdz09>

Meeting ID: 893 9454 4016

Telephone only ID: 893 9454 4016

Passcode: fmh

Passcode: 995434

James Gallo KB2FMH is a FLARC member. He was first licensed in 1985 as a Novice with KB2FMH and was an avid DX chaser way before any global spotting was a thing – back then you had to tune up and down and listen for that rare callsign in the noise. "Spotting" was calling a friend on the telephone to tell them the call and frequency!

After a long hiatus between 1992 and 2016 he returned to amateur radio. He is an Extra Class operator who continues the hunt for DX and has amassed 283 DXCC entities as well many Islands. He is currently a registered ARRL instructor in the Hudson Division, an ARRL VE Liaison in Brooklyn NY, an administrator of the popular Parks on the Air (POTA) program as well as an Activator and a producer of many special event stations – as well as an operator for a few other SES events produced by others.

Regarding DX, besides being an expeditioner, he's a member of INDEXA, NCDXF, RRC, ARD-Norway, IOTA, Ten-Ten International and a founding member of the NYC DX Association. He is currently working with the logistical support team for the 3Y0J / Bouvet Expedition while planning another top 20 most wanted DX-pedition for mid-2023.

So, join FLARC on **January 13th** for this timely and exciting presentation. If you have any questions, please contact Ed Efchak at 802-282-6700 or at wx2r@arrl.net.

For more information, please visit the club's website at www.FairLawnARC.org or call 201-791-3841.

Emergency Communication * ARES * Special Interest Group Update

Greetings ARES members and friends,

I would like to wish everyone a happy and a healthy New Year! There are some big plans for the upcoming year for ARES members.

In early December 2022, Bill Kelly **NB1LL** hosted a Zoom meeting covering an information session about the American Red Cross. The American Red Cross (ARC) is looking for volunteers to assist them with training opportunities and potential volunteer opportunities in the event of an actual emergency. Bill's current effort is to have Radio Amateurs volunteer their time and efforts to assist ARC with communications; it is not necessary for us to join the ARC. The key is that the ARC is looking for sufficient volunteer manpower to cover communications from ARC sites (shelters, staging areas, warehouses etc.) 24/7 during emergencies. He said that in the "hotwash" following recent ARC activations, a frequent recommendation was to get better radio communications by Amateur Radio Operators. Among the challenges:

In addition to 24/7 coverage of ARC sites, how to provide statewide communications coverage, from High Point to Cape May and how to build up digital communications. Bill notes that while ARES/RACES could in theory provide this level of support to ARC, it appears that ARES/RACES do not have adequate manpower. Hence the ARC effort to involve Radio Amateurs. Since ARRL has a Memorandum of

Understanding (MOU) in place with ARC, this is a good opportunity for ARES to look for ways to synergize with the ARC.

This is a great opportunity for ARES members to volunteer with the ARC. More information will come in during the upcoming months. The local Northern New Jersey ARC is located in Fairfield NJ, only about 12 miles away from Fair Lawn.

In other news, a transmitter hunt (otherwise known as a Foxhunt) may take place during the last weekend of January, the same weekend as Winter Field Day. More information on this will be provided in a future email or on the IO Groups EC-SIG Page. Thank you to the participants in the last Foxhunt which took place on Sunday, November 6th. Special thanks go to Bob KD2BKD for organizing this effort.

Our FL ARES Nets are on the FLARC Repeater every Wednesday evening at 8:00 PM. These Nets are shared with FL-RACES and FL-CERT (Community Emergency Response Team). I would like to thank the Fair Lawn Amateur Radio Club for the use of their Repeater.

Have a happy New Year!! Thank you very much.

David Gotlib, **KD2MOB**

FL ARES Emergency Coordinator

Good To Know

Attenuation in dB per 100 feet

Cable Group	30 MHZ	50 MHZ	100 MHZ	150 MHZ	450 MHZ	1000 MHZ	2400 MHZ
LMR-100A®	3.9	5.1	7.2	8.9	15.8	24.1	38
LMR-200®	1.8	2.3	3.2	4	7	10.4	16.5
LMR-240 Ultra®	1.3	1.7	2.9	3.6	5.3	9.5	12.7
LMR-240®	1.3	1.7	2.4	3	5.2	7.9	12.7
LMR-400 Ultra®	0.8	1.1	1.5	1.5	3.2	5	7.9
LMR-400®	0.7	0.9	1.3	1.5	2.7	4.1	6.6
RG-174	5.5	6.6	8.8	10.3	18.1	27.4	43
RG-213	1	1.5	2.1	2.8	4.4	7.1	12
RG-214	1.2	1.6	1.9	2.4	5.1	8	13.7
RG-316	4.3	5.6	7.9	4.4	17.2	26.1	45
RG-58A/U	2.5	4.1	5.3	6.1	10.6	24	38.9
RG-8/U FOAM	1	1.2	1.8	2.4	4.4	7.1	12
RG-8X	2	2.1	3	4.7	8.6	12.9	21.6
RG218/U	0.4	0.6	0.8	1	2	3.8	6.4

The 2023 FLARC Member Survey

The 2023 edition of the FLARC member survey has arrived. It promises to be shorter than previous years, but here is your chance to make your contribution to the questionnaire.

These surveys have helped plan the growth of this club and are always a program topic.

Take the survey ASAP. Don't see it?
Drop a note to Ed WX2R at WX2R@arrl.net !!

Special Note: As non-profit, the IRS now requires that we disclose annually the use of paid lobbyists to our members and indicate approximately what percentage of their dues goes toward that. 0% of your 2021 dues payment will be used by the club to directly pay a lobbyist firm to lobby on behalf of all our members regarding pending legislation that impacts our hobby.

Pandemic Theatre

With Winter Field Day upon us, here is a look at how another club did it last year. The Lake Cumberland ARC in Somerset, Kentucky did a video of their event and it's a good overview to a fun weekend.

<https://www.youtube.com/watch?v=IzLML5Xf6lw>

Here is the link to their website:

<http://www.lcara.net/>



Troop 53 Visits FLARC

The local Boy Scout troop visited the clubhouse on December 12th to study for their merit badges. The 21 scouts were instructed by Bruce NJ2BK, Michael KD2SOG, Steve KA2YRA, Nomar NP4H and Ed WX2R.

Scoutmaster Michael indicated that he was pleased with our work and would look to send other packs/troops to the clubhouse.



Get Direct With FLARC!

Here is a direct link to specific club info: just a click away!

<http://apparel.FairLawnARC.org>
<http://auction.FairLawnARC.org>
<http://blog.FairLawnARC.org>
<http://calendar.FairLawnARC.org>
<http://events.FairLawnARC.org>
<http://exams.FairLawnARC.org>
<http://facebook.FairLawnARC.org>
<http://news.FairLawnARC.org>
<http://swap.FairLawnARC.org>
<http://tech.FairLawnARC.org>
<http://youtube.FairLawnARC.org>

<https://groups.io/g/FairLawnARC>



Online License Testing!

Are you looking to get your license or upgrade without leaving your home? All you need is a laptop computer with a video camera.

There are number of sites listed on hamstudy.org/sessions. These folks will walk you through taking an exam online.

I have worked with both WB5QNG and AA7HW. If you have any questions, please contact me at mStevenk2sab@gmail.com

73,
Steven Boston K2SAB

Nostalgia

Heard on the repeater recently:

Tim W2VVV took his original license test at FLARC at the age of 10 years old! [His previous call was KB2YGJ]. Maybe he'll come back and join us before long.

— • • • —

West Palm Beach Partnership Update

Ed WX2R is on sabbatical until March in nearby Tequesta FL but will be presenting the FLARC story at their January 25th business meeting.

He will provide an overview of our club and also items of interest to perhaps partner with WPBARG, from the FLARC member survey input.

Ed will follow up with a report to FLARC of their meeting at a later date.



Ham Radio Is Contagious And It Won't Make You Sick!!

Renew Your ARRL Dues...

Send Free Money to FLARC!

The ARRL has a great program to support affiliated clubs in that it sends part of your dues back to the club if you renew through the club.

So... when you get your ARRL renewal, send both your check and your renewal application to Bruce NJ2BK, our trusty Treasurer, who will take care of getting your renewal to Newington and a fat check for \$5.00 back to FLARC.

Nothing can be simpler...
you just have to remember!!

*Print and use the
form on page 55
of this issue of*

The Resonator



Club Apparel —

Get Them While They're RED!

Club apparel is always in vogue. Red is always "in" and your club friends all have them... you want a shirt or jacket for the next FLARC event! Great for Field Day!

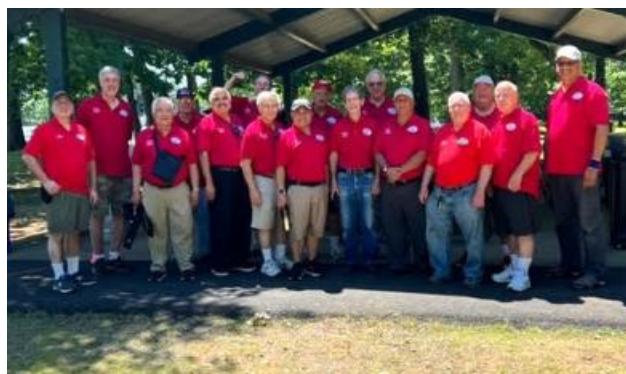
Don't forget.... they're easy to order.

Go to www.hamthreads.com

or visit <http://apparel.FairLawnARC.org>

Check out the item selection that is posted on the FLARC website (with pictures and prices). Order the shirts or other items you want with either the regular FLARC logo or the still-cool 60th anniversary logo. Note: **RED** is the primary and preferred club standard shirt color.

And why not WEAR your nice red shirt when you come to the club, especially for meetings and events.



It's easy to spot FLARC members
with their red club shirts !

2022 FLARC Nets On The W2NPT Repeater:

Near and Far Net Mondays at 8PM

W2NPT and NJ2BS Repeaters

Near and Far Net Needs Net Control Operators!

With an average of 14 weekly checkin's to the Monday night net, it would be great if we had not only a solid rotation of net control operators but also a bullpen of alternative operators as well. When the burden falls to a few, interest wanes. If you check in, why not take a turn as net control?

It's fun, easy, and provides a valuable experience in traffic handling. And we have a guide to follow. Thanks! Start 2023 off by volunteering!!

Remember: Ham Radio Is a Contact Sport!

BEQUEATHS AND DONATIONS

Planned gifts usually imply the family donation of amateur equipment to the club when someone has become a Silent Key. But it can be more. Club members might consider making a gift through a will or trust; gifts that help provide lifetime income to the club. Consult with your lawyer, estate planner or tax advisor if you feel such a gift is worthy.

About The Club

The Resonator is published monthly and is the official (and only) newsletter of The Fair Lawn Amateur Radio Club. FLARC was established in 1956 and has met continuously since inception.

The club is sponsored by the Borough of Fair Lawn. The club meets every Friday, except when a *Kawfee Tawk* is scheduled, at 6PM at the club station in The Fair Lawn Community Center, 10-10 20th Street, Fair Lawn, NJ. Business meetings are the first Friday of the month at 7:30 PM at the club, and on Zoom.

Visitors ARE ALWAYS welcome at our meetings.

FLARC operates the W2NPT repeater (145.470-PL **167.9**) located high atop the Community Center. The analog repeater is open to all amateurs for use without restrictions.

The club has nearly two hundred paid members. Dues are currently \$25 per year; \$20 for new members.

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Thanks!
for your
Support!!

This is YOUR club.... Be a part of it !!

MARKETING COMMITTEE NEWS

The Publicity Committee is now the Marketing Committee and is working to spread the good words about FLARC and help get all members involved. Interested in joining? Drop a note to wx2r@arrl.net.



**FAIR LAWN'S
COMMUNICATIONS CENTER!
With Our Antennas On The Roof!**



Blood Donors Needed In This Time Of Emergency

The Red Cross and related organizations are in great need for blood donations since most corporate blood drives have been cancelled. This has become acute recently. Especially in these days of Covid.

Communitybloodservices.com

has a network of offices open during the week and would really welcome folks making appointments to donate blood.

Dear fellow Amateur Radio Operators,

The American Red Cross (ARC) in New Jersey is working on a project where Amateur Radio Operators (HAMS) would support Red Cross internal emergency communications during a disaster. Red Cross sites can be shelters, warehouses, points of distribution, family reunification centers, community reception centers, and other sites where the Red Cross is supporting disaster response and recovery missions.

We are seeking HAMS to support these sites as a backup for conventional communications that may fail during a disaster. This work is in direct support of safety of life and protection of property (47 CFR § 97.403).

Currently, we are only looking for names of operators who would be interested in helping and their location within the state. The how will come after we know the who.

We are looking for HAMS to work as partners, either as an individual or with an organized group (club, ARES, RACES). We are not looking to take anyone away from their other committed roles that they would perform for their communities.

We have split the state into three territories, North-Central-South, each containing seven counties, with communications being provided within the territories and the state.

The Red Cross will provide free disaster training to better understand what we are doing, as well as drills and exercises. Your commitment will be to attend training, drills, and exercises when you are able to and based on your ability to participate at the time that a disaster strikes.

If you are interested in helping or learning more about this opportunity to use your amateur radio license in support of emergency communications in New Jersey, please fill out the form, at the link below.

73, ARC Assist Committee

Ed K2BED • Mike KC2UOA • Peter S, not yet licensed • Bill, NB1LL

Form is at <https://forms.office.com/r/tqmB8cBV3F>



FLARC December 10th, 2022 VE Testing Results

With VE testing back on schedule, Gene W02W reports the following results:

Name	Call	License Earned
Frank Tiesi Jr.	KE2AFG	General

Testing for January will be at the Fair Lawn Recreation Center - with "Covid Restrictions."

See page 9 of this Resonator copy, and also the FLARC website for the latest details.

Ten Special Interest Groups [SIGs] Already Formed: Any Others?

A new SIG—Radio Direction Finding—has started under the tutelage of Bob KD2BKD. Club interest continues to grow in the SIGs.

Another recently formed SIG is for those interested in Raspberry Pi and Arduino projects, but now includes DoltYourself (DIY)/Makers kit building, 3D printing and similar topics – also managed by KD2BKD.

A list of all of the current SIGs is shown on page 6.

Other possible groups, from the member survey, include:

- *Radio Propagation*
- *Antennas and how they work*
- *Ham radio software*

Anyone interested in leading any of these groups...?

Please contact webmaster@FairLawnARC.org



Image from May, 1926 QST, courtesy ARRL

The Way We Were By Fred Belghaus W2AAB

The Art of Homebrew – Part 2

Last month, we reviewed the history of home building by amateurs from the earliest days to the 1920s. This month, we continue with a look at the 1930s, a time of changes in amateur radio, and in the art of homebrew.

The 1930s – Wood, Bakelite, Steel and Aluminum

The 1930s was a time of change, both in the art of homebrew and in amateur radio itself. By the early 1930s, reasonably acceptable receivers were available from commercial sources, but their cost would prove challenging if not prohibitive for many, so there were still many amateurs who continued to build their own. Transmitters would remain largely homebrew until the late 1930s. This example, from about 1930 at W9DWV looks basically unchanged from the late 1920s, with both receiver and transmitters all home built.



The transmitters are built on supporting uprights in the 1920s style, with black Bakelite panels. The receiver at left appears to use composition board.

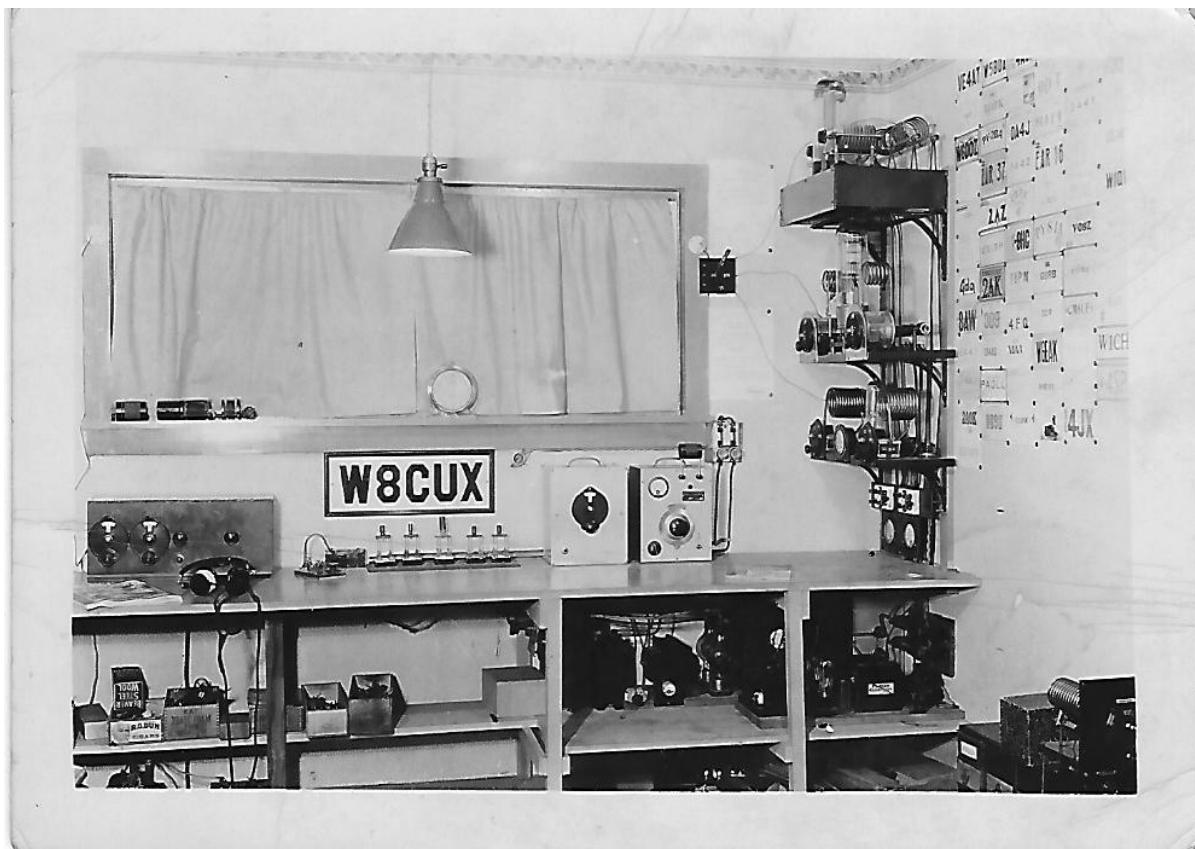
The station includes three CW transmitters: a 30 Watt Hartley, built breadboard style, and two others built rack-panel style — a 250 Watt Hartley, and a 100 Watt crystal controlled rig, which the station operator writes is “used most of the time.” The receiver is a regenerative set with 2-dial tuning.

Continued on next page.

The Way We Were, continued.

Here's the neat little station of W8CUX of Millington, Michigan in the early 1930s. Construction techniques include breadboard style for the transmitter (on wall at right, lower shelves), the "antenna coupler" (what we now call an A.T.U.) on the wall at right, top shelf, and the regenerative receiver at extreme left.

On the bench can be seen various plug-in coils for the receiver covering different bands, and to their immediate right, a station monitor (aluminum box with single vernier dial) and wave meter (aluminum box with meter). Regulations required that amateurs have equipment capable of verifying their transmitting frequency.



From 1934, W9PRA of Milwaukee has a similar, but simpler station using a Hartley oscillator built breadboard style, and a 3-dial receiver, which suggests a TRF (Tuned R.F.) design.

The unit to the right of the receiver is probably an outboard R.F. amplifier for additional gain.

The Way We Were, continued.

The TRF receiver differs from the more usual regenerative circuit by using several individual R.F. stages, each inductively coupled to one another in tandem and well shielded, to provide gain ahead of the detector, which could be a simple diode, or a regenerative ("grid leak" type). The idea behind this design was to provide improved gain and selectivity. [1]

In practice, however, the TRF receiver had several disadvantages. It was more difficult to build and more costly, requiring more tuned stages, more coils to wind, and more tubes to amplify each R.F. stage. These tuned stages were also often "tricky" and difficult to get working properly, and suffered from instability and "howling." Also, each R.F. stage had to be separately tuned manually, a problem that was not entirely solved even by using "ganged" variable capacitors for tuning all R.F. stages at one time.

Ultimately, TRFs provided little or no real improvement over a well designed regenerative set, and they soon fell out of favor among amateurs. The superheterodyne receiver would shortly replace both types, offering vastly improved performance in sensitivity and selectivity.

A comparison of the popular receiving circuits of the 1920s and '30s will be covered later in this article.

The Way We Were, continued.

Meanwhile, W9GMV of Minneapolis offers an alternate to wood-frame rack panel construction by using steel angle or channel stock resulting in a neat, professional looking transmitter.

The photo is dated 1934.



From the size of those “bottles,” (high power transmitting tubes) visible in the upper compartment, this was a “big rig” for the 1930s. The reverse side of the photo-QSL states that it consists of a “247 oscillator, 246 doubler, 210 buffer stage, and an 860 final,” running 400 Watts (input) on 14.005 Megacycles (Megahertz).

The “certificate” in the frame on the wall was actually his amateur radio license, although it looks more like a First Class commercial ticket. Things were different in those days!

The Way We Were, continued.

Below is an example of what I believe to be one of the first uses of aluminum in rack-type transmitter construction. It appears on this photo of the homebrew transmitter at W8EHT in Salona, Pennsylvania (Clinton County), dated 1932.



Even more unusual is the use of a single large aluminum sheet to form the front panel of the transmitter, including AM modulator and power supplies. On the back of the photo-QSL the overall dimensions are given as 60 inches high by 28 inches deep by 18 inches wide.

The transmitter circuit is a Hartley oscillator driving a pair of 211 triodes, producing 150 to 200 Watts output per tube in Class C (CW) service. [2] The modulator was a pair of 845s, and the operator adds in his comments that he used a Western Electric type 600a microphone for AM phone operation.

The Way We Were, continued.

See below for an image of the Western Electric 600a microphone, a real “classic” from the early 1930s, and highly collectible. A pair of them on a stand are being offered on sale for a current price of more than \$5,000. The springs holding the microphone element are to minimize mechanical vibration of the element.



Western Electric 600a Carbon Microphone
Image: eBay

From 1935, here's a photo of W9FFR of Kansas City, showing his large, homebrew rack mount high power transmitter (left), and his commercially made Hammarlund "Comet Pro" receiver (right, on table top).



The transmitter uses steel front panels, but it is not clear whether the framework is steel or wood. Nevertheless, it looks better than many homebrew transmitters of the period, and probably ran several hundred Watts.

The Way We Were, continued.

Here's a closer look at the "Improved Comet Pro" receiver shown above – Hammarlund's first major amateur band communications receiver, first advertised in 1933.

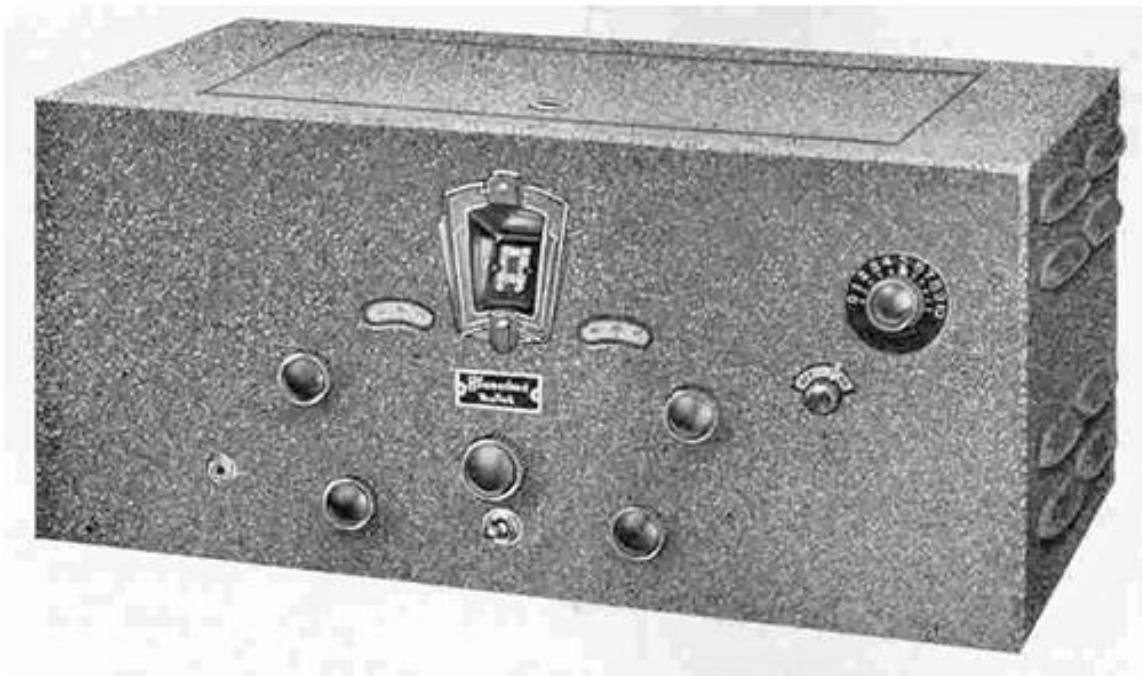


Image: http://www.skywaves.ar88.net/commrx/Hammarlumd/Comet/Comet_Pro.html

Experimentation was common and encouraged in the 1930s. Many innovative circuits were tried in receiver design in an attempt to cure the common receiver problems, including the ever present problem of receiver generated noise.

One such attempt was the "Autodyne" circuit, whose goal was to improve signal to noise ratio without increasing amplification, but by using a regenerative circuit tuned slightly off the center of the receiving frequency. In 1933, an article was published in *QST Magazine* by George Grammer (then Assistant Technical Editor) describing this principle, and offering an improvement in sensitivity and "selectivity," which he defined as being less subject to overload on strong local signals. [3]

The "Neutrodyne" receiver was developed by Harold Wheeler, working with Louis Hazeltine at Stevens Institute of Technology in 1922. It was an improvement on the early Autodyne circuit, employing mixing of two frequencies to produce a third, making it similar to the Tuned R.F. circuit.

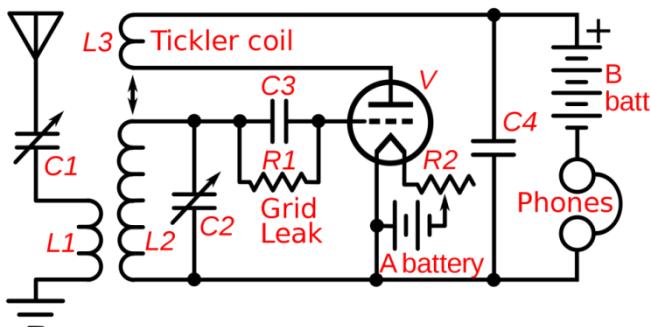
Its disadvantage was the need for neutralization following each tuned R.F. stage to limit self-oscillation. By the 1930s, the introduction of four-element (tetrode) vacuum tubes made the "Neutrodyne" circuit obsolete by eliminating the tendency to self-oscillation.

Then, Hazeltine developed the Automatic Volume Control (A.V.C.) circuit, which has been used in all modern receivers since. [4]

Ultimately, the regenerative, T.R.F., Neutrodyne, and Autodyne designs would all be rendered obsolete by the superheterodyne, designed and developed by Edwin H. Armstrong in the 1930s.

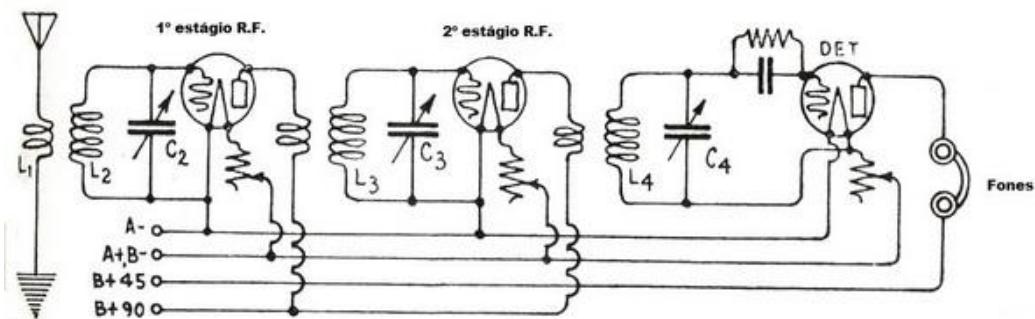
The Way We Were, continued.

Here's a schematic comparison of the regenerative, T.R.F., neutrodyne, and superheterodyne circuits.



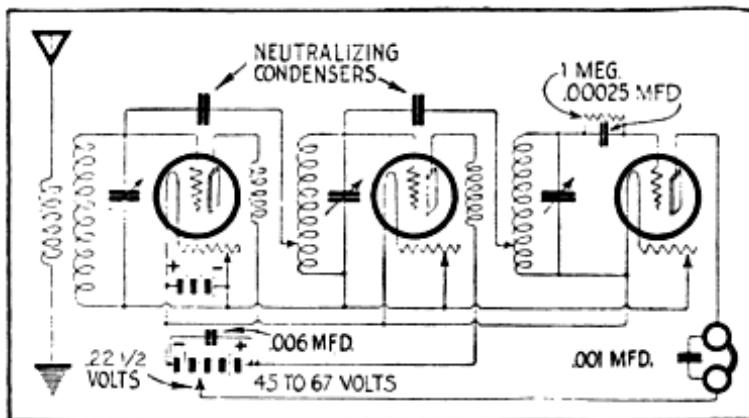
Simple regenerative circuit

Image: https://en.wikipedia.org/wiki/Regenerative_circuit



Tuned R.F. receiver circuit

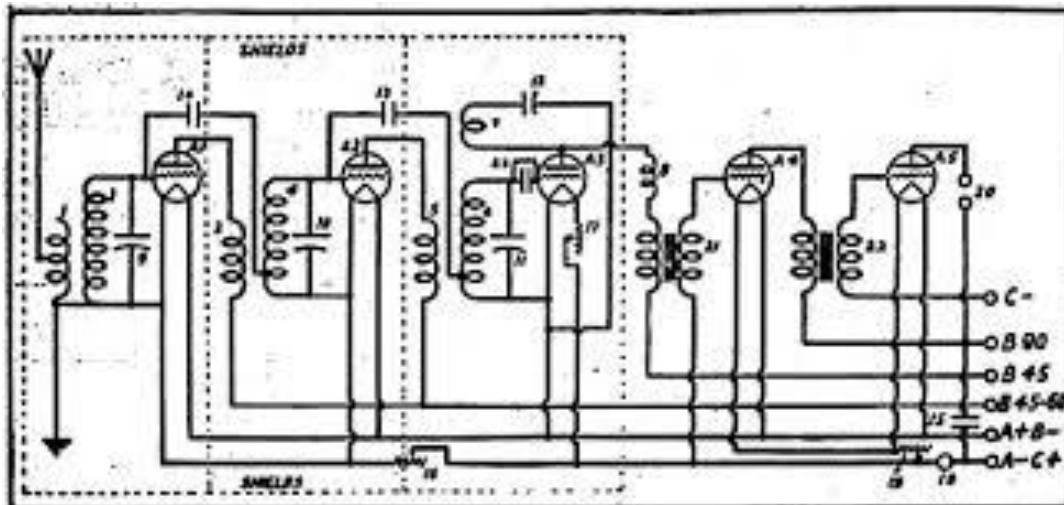
Image: <http://www.fazano.pro.br/ing/indi09.html>



The neutrodyne circuit: *R* signifies rheostat; *P*, potentiometer; *N*, neutro-former coils. Note positions of neutralizing condensers

Image: See NOTE [5]

The Way We Were, continued.



Superheterodyne receiver circuit

Image: <http://users.tpg.com.au/users/lbutler/Superhet.htm>

Here's another innovative and unusual homebrew transmitter, at the station of (Mrs.) Carrie Jones, W9ILH of Alton, Illinois in 1936. Like W8EHT (above) it uses a single large sheet of aluminum for the front panel in place of the usual Bakelite or steel.



The transmitter consisted of a type 59 tube oscillator driving an RK-20 with an 852 final, running 450 Watts input. The type 59 was a “triple grid” (pentode) power amplifier capable of about 20 Watts RF output, developed by R.C.A. [6]

The RK-20 was another power pentode, but developed by Raytheon, and according to tests by *Radio Magazine*, capable of about 80 Watts output, with an efficiency estimated at 70 per cent. [7]

The Way We Were, continued.

The 852 was a triode high power transmitting tube with a claimed output of 300 Watts. It had an unusual shape.

TRANSMITTING TRIODE

THE ORIGINAL HIGH-FREQUENCY TUBE

852

List Price \$16.40

300 WATTS INPUT

RCA-852 is a husky 3-electrode transmitting tube containing a 32.5-watt thoriated-tungsten filament of the spiral-wound type. Maximum plate dissipation is 100 watts. RCA-852 is designed for use as an r-f amplifier. In this service it will take 300 watts input up to 30 Mc. and 150 watts input to 120 Mc. Each electrode of the tube is supported on a separate stem and each electrode lead is brought out of the bulb through a separate seal. This construction insures high insulation and unusually low interelectrode capacitances.

Typical operating conditions for the 852 in class C plate-modulated service are: D-c plate voltage, 2000 volts; grid bias, -500 volts; d-c plate current, 67 mA; d-c grid current, 30 mA; approximate driving power, 23 watts; and approximate power output, 75 watts.

RCA-852 was the first triode of reasonable power designed for the high frequencies. Hundreds in daily service in commercial, government, and amateur stations testify to the ability of these tubes to give top performance under all conditions.

Image: RCA Transmitting Tube guide, via: <https://www.diyaudio.com/community/threads/852-tube.110556/>

Referring to the shack of W9ILH, the receiving equipment (on desk at right) consists of a National Radio Co. Model FB-7 with attached RF Amplifier and "doghouse" type power supply. The FB-7 used plug-in coils for the amateur bands, accessible from the front panel, based on a concept first developed by radio designer McMurdo Silver. The concept was first used in the National "AGS" in 1932 and later refined to include an entire tuned circuit plug-in drawer for each tuning range in the famous HRO series of National receivers, first introduced in 1935.

Another example of innovation by amateurs can be seen in this rack-type transmitter design by W9WIF of Chicago [8] in the mid to late 1930s.



The operator combines wood-frame rack construction with two new ideas. The front panel uses composition board (called "hardboard" in those days) [9] instead of metal or Bakelite, and the sides are screened with perforated sheet to prevent accidental contact with the high voltages present inside the transmitter.

The Way We Were, continued.

In the days before solid state, amateur equipment (especially transmitters) required voltages that would be considered dangerously high today, and it was an ongoing campaign of the A.R.R.L. to promote safety in the ham shack. W9WIF has applied that principle to his transmitter.

W9WIF used a commercially manufactured receiver, though. It was an R.M.E. (Radio Manufacturing Engineers) Model RME-69, considered one of several high-end receivers in its day.

By the way, the meter at top center was called an "R" meter, and not an "S" meter in those days. "R" meant "readability," and was marked in units from 1 to 9, but there was no decibel standard established for each "R" unit.

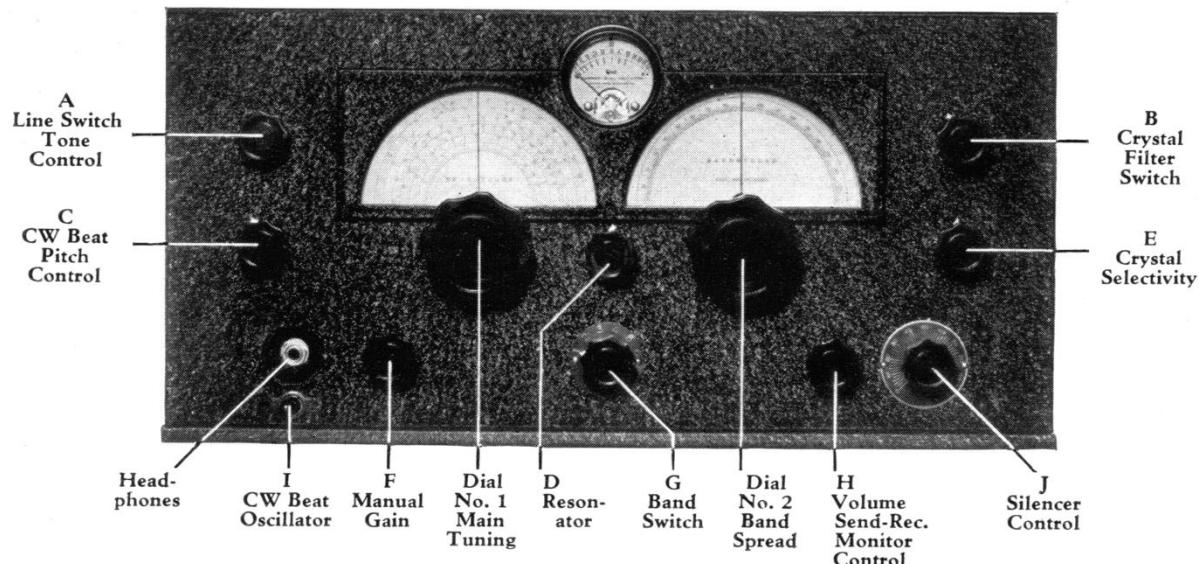


Fig. 2B. Front Panel Layout of the Standard RME-69, AC Model with Built-in Noise Silencer.

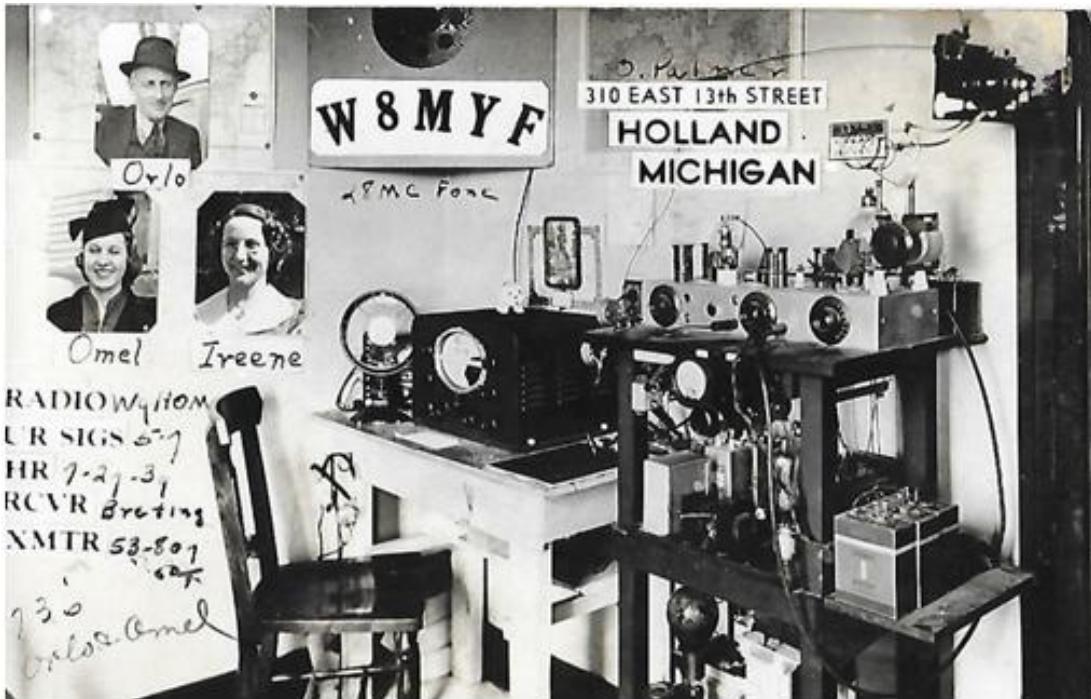
Image: <http://www.skywaves.ar88.net/commrx/RME/RME.html>

By the late 1940s, the "R" meter on commercially manufactured receivers had been replaced by the still existing "S" meter, with "S" meaning "strength," and with each unit from 1 to 9 and beyond calibrated in decibels... BUT... even today, there is no universal standard of how many decibels equal one S-unit. Some manufacturers use 5 decibels, others use 6.

By the late 1930s more and more amateur stations included a commercially built receiver, even when the operator built the station transmitter. These were almost exclusively superheterodyne receivers, while the simpler but less desirable regenerative sets were still being built, mainly by youthful beginners.

The Way We Were, continued.

Here's a station that features simple, homebrew transmitting equipment and one of the popular, commercial receivers of the day.



W8MYF's 1939 station shows a clearly homespun transmitter built on a steel chassis and mounted on a wooden, probably also homespun, rack containing several shelves for holding related equipment.

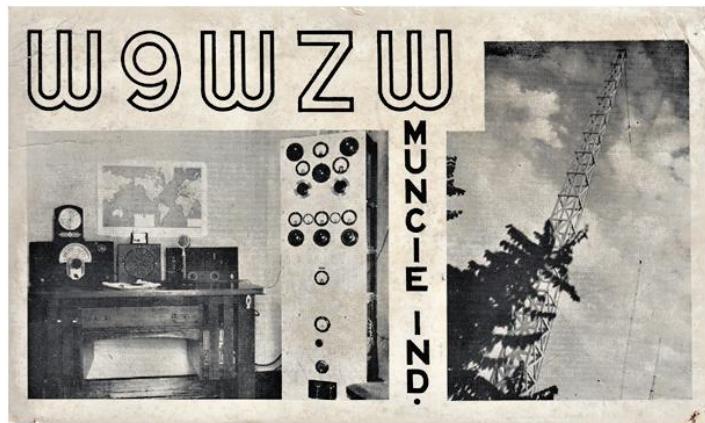
The receiver on the corner table is a Breting 14AX, made by the Breting Radio Manufacturing Company of Los Angeles in 1938. It included a crystal filter for improved selectivity. [10]

Breting was one of many manufacturers serving the amateur radio community in the 1930s. There were certain "hub" cities that hosted these companies, including Los Angeles, Chicago, and of course New York.

Some of the names of receiver manufacturers in this period besides Breting were E.M. Sargent, Patterson Radio, E.I. Guthman, McMurdo-Silver (later Silver-Marshall), Gilfillan Brothers, and the better known companies like Hallicrafters, Hammarlund, National Radio, and R.C.A.

The Way We Were, continued.

Here's W9WZW's station in Muncie, Indiana from 1936. Once again, there's a commercial receiver, a Tobe-Deutschmann Model "H," and a typical rack mounted transmitter with front panel of what appears to be a single, large sheet of aluminum. Incidentally, the Tobe-Deutschmann Model "H" was one of the first, possibly the very first ham-band-only receiver.



Most interesting to me is that tower at right. You can't quite make out enough details without magnification, but that tower is not metal. It was a homemade wooden tower, which was not at all uncommon to see in those days. The A.R.R.L. *Handbooks* in that period also gave construction details for wooden towers.

I can only wonder how hams that built them allowed for lightning protection!

We're almost at the end of our journey in the 1930s, but here's our final example, a very professional looking rig at W9YBM, Cedar Rapids, Iowa, dating from the late 1930s, showing how far amateur construction had become more sophisticated since the early part of that decade. I wonder about something else — whether W9YBM was also an employee of that very famous amateur equipment manufacturer in Cedar Rapids... Collins Radio.



Although the receiver is made by Howard Radio, a Chicago company that also made consumer type broadcast radios, there is what I believe to be a home built frequency meter on the desk at left, and the beautifully constructed transmitter at right. Since it was obviously built by a "phone man," (microphone plainly visible on the desk), the rig contains homebrew exciter, a final amplifier stage evidently capable of 250 Watts, AM modulator and power supplies for all three. It is neat, well laid out, and very well presented in metal rack and panels. Any ham would have been very proud of such workmanship.

The Way We Were, continued.

By now, I think it's time we took a quick look at a late 1930s amateur radio publication and some of those construction techniques recommended by them. Although there is an entire chapter devoted to construction techniques and additional hints, I thought we'd take a look at some of the illustrations to get a clearer picture.

Here are a few illustrations from the 1937 edition of *The Radio Handbook*. This is not the A.R.R.L.'s *Radio Amateur's Handbook*, but one published by the editors of *Radio Magazine*, a California publisher.

The first two give details about the proper installation and use of a drill press

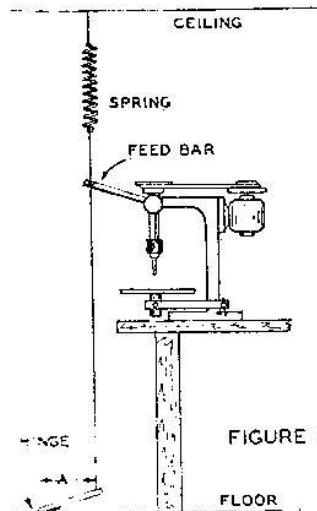


FIGURE 8

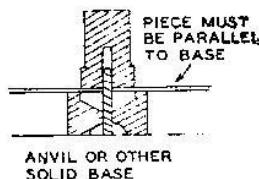


FIGURE 9

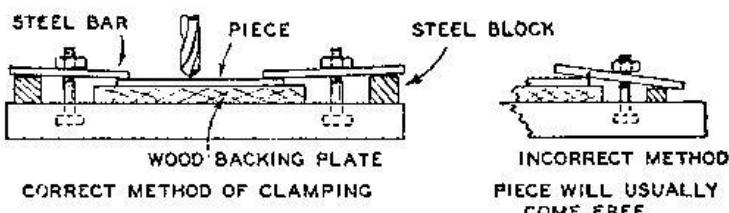


FIGURE 7

Next is a short dissertation on the proper method of using a bench vise.
(The parts were a lot bigger in those days, so the vise is a lot bigger, too).

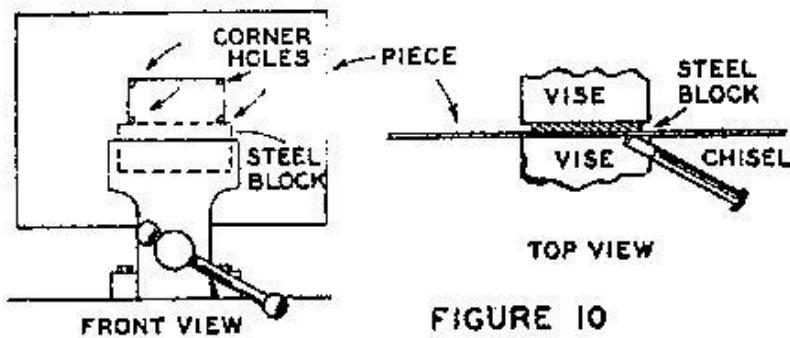
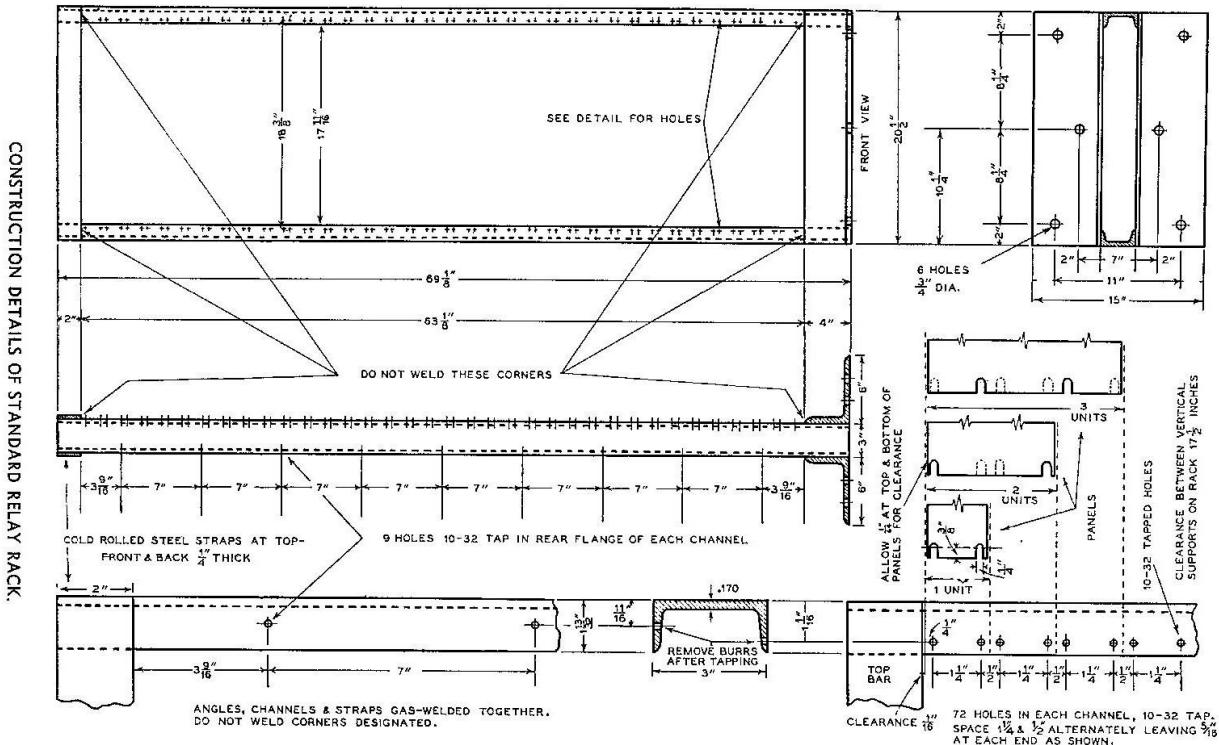


FIGURE 10

The Way We Were, continued.

Here's a peek at how to build a relay rack panel using steel "U" channel and some brackets:



Followed by some final instructions about drilling the holes...

RELAY-RACK PANELS

1. Make panel height a multiple of $1\frac{3}{4}$ inches less $1/32$ inch for clearance.
2. Both top and bottom edges of a properly mounted panel will, neglecting clearances, always fall halfway between a pair of holes spaced $\frac{1}{2}$ inch apart on the rack.
3. It is seldom necessary to cut all the possible mounting-screw slots in a panel, but it can be done if desired.
4. Any panel laid out to fit the rack will also fit if the panel is turned end-for-end or back-for-front.

The Way We Were, continued.

If the experimental minded amateur wanted to venture onto the “Ultra-Highs,” which included 10 meters and up in those days, and he or she wished to make a multi-element “rotary,” they would refer to the chapter on antennas, and learn the proper design details and even the proper spacing for each element of a Yagi beam. Then, to rotate that antenna, the amateur would use the suggested method illustrated below, using mostly wood, a pulley, some other mechanical odds and ends, and a little ingenuity.

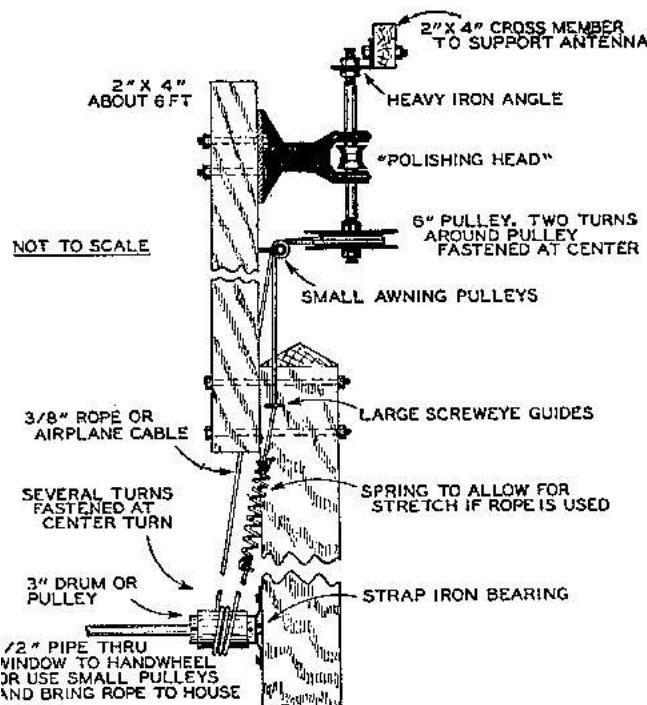


FIGURE 61.

That was long before the days of antenna rotators, or even prop pitch motors, which weren't available to amateurs until after World War II – so the usual source was a geared-down washing machine motor. Most hams interested in exploring these “ultra high” bands used a simple vertical or that now once again popular antenna called a J-Pole. Yes, the J-Pole is much older than you may think. It's nothing more than an end-fed Zepp, only a lot smaller than the HF version, deployed vertically instead of horizontally, and just as mediocre an antenna as it always was.

The hams of those days weren't afraid to get their hands dirty, or of using tools that might produce calluses, blood blisters or minor abrasions now and then. Neither were they afraid of using carbon tetrachloride to clean parts (definitely *NOT* recommended)! There was always some iodine and band-aids to treat some of those minor annoyances. Others could be treated by your neighborhood druggist, unless you were in a big city with access to your regular physician. And yes, he would even make a house call, at any hour of the day or night in an emergency. Neither were they afraid of solder smoke or “high voltages.” They knew enough to treat electricity and sometimes dangerous chemicals with respect, and to practice common sense safety methods, at least, most of the time.

The Way We Were, continued.

Next month, we move onward to the 1940s and perhaps beyond, to see how things would change again for amateur homebrewers.

Until next month,
73 and Best Wishes for the New Year.

Fred, W2AAB

NOTES

[1] *Wikipedia* article: “Tuned radio frequency receiver,” at:

https://en.wikipedia.org/wiki/Tuned_radio_frequency_receiver

[2] “211 Power Triode” (characteristics), *R.C.A. Transmitting Tubes*, May 1, 1950, at:

<http://www.tubezone.net/pdf/211-vt4c.pdf>

[3] Grammer, George, “Rationalizing the Autodyne: A Three Tube Regenerative Receiver of Unusual Performance,” *QST Magazine*, January, 1933

[4] Litwinowich, Paul, “Hazeltine, The Silent Contributor,” *WSHU Public Radio* website, October 12, 2015, at: <https://www.wshu.org/vintage-radio/2015-10-13/hazeltine-the-silent-contributor>

[5] Binns, Jack, “Third Article: Tuned Radio Frequency and Neutrodyne,” Around the Radio Circuits, *Popular Science*, October, 1923, pp. 61-62, at: <https://earlyradiohistory.us/1923neu.htm>

[6] R.C.A. Data Sheet, Type 59, at: <http://www.r-type.org/pdfs/59.pdf>

[7] Bane, Clayton F., “A New High-Power Pentode, the Raytheon RK-20,” *Radio Magazine*, June, 1934, p. 6

[8] *Radio Amateur Call Book Magazine*, Spring, 1939

[9] “Composition Board” article, at:

<https://encyclopedia2.thefreedictionary.com/composition+board>

[10] “Breting Radio (Receiver) Company – Los Angeles, California,” *The N7RK Webpage*, at:

<http://n7rk.com/breting.htm>

Ed - itorial : Happy New Year!

Well, that's out of the way. As you get older, it seems to get harder to put an emphasis on "Happy," but I guess we do our best. As a ham, there is always room for optimism and the DX has been good. It is an ascending solar cycle and with few if any more on the personal horizon, you make the best of it.

Resolutions? I've been one to set broad goals related to health, finances and personal or career targets. I've tried not to make outlandish, unattainable, and often ridiculous resolutions that almost all of us already know we will not keep. In fact, most people don't even remember half the New Year's resolutions they made come Valentine's Day. I've not been that way. But the holidays are usually a time for reflection.

So, what does 2023 hold? For me and amateur radio, it is simply to be on the air more. Not only because of good band conditions, but also because there is still much to learn about in this peculiar hobby of ours.

In no order:

I want to do more CW. I need to improve my operating skills and get away from the crutch of using FT8.

I want to work with more satellites. I have five under my belt and want to add at least five more this year. Ambitious...

Maybe do POTA; but with the guys in the club who are really into it and get my interest going big-time. I see a lot of posts about guys doing "solo POTA" ... that doesn't appeal to me as much as a being part of a group activity.

I've volunteered to help with public relations with HAMSCI for the two upcoming eclipses this year and next, and I plan to continue with similar activities as part of the ARRL Public Relations Committee — so the pro bono professional time side of me is pretty much taken.

FLARC club responsibilities are an open issue; I'd like to find people who want to work on garnering speakers and putting out newsletters so I can start

Ed - itorial, continued.

to back away; but we will see, as it is always hard to give up entrenched monthly routines (now into its eighth FLARC year) and finding suitable volunteers.

Other than that, it will be the fun of more time in the sun and doing a little DXing from Florida. I'm planning stops in Orlando, Dayton and (hopefully) Friedrichshafen to make for a hamfest trifecta.

And maybe something new as life constantly changes.

Hopefully you will have your own resolutions. As Oscar Wilde noted: "Good resolutions are simply checks that men draw on a bank where they have no account."

73

DE Ed WX2R



Morse Code by Similarity

A	● -	A	● -
W	● ● -	U	● ● ● -
J	● ● -	V	● ● ● -
N	— ●	N	— ●
D	— ● ●	G	— — ●
B	— ● ●	Z	— — — ●
R	● — ●	R	● — ● ●
K	— ● —	P	● — — ● ●
C	— ● — ●		
F	● ● — ●	E	●
L	● — — ●	I	● ●
		S	● ● ●
P	● — — ●	H	● ● ● ●
X	● — — ●		
Q	— — — ●	T	— —
Y	— — — ●	M	— — —
		O	— — — —

Digital Voice SIG Update



DigiVoice@FairLawnARC.groups.io

A Special Interest Group SIG for those interested in Digital Voice modes (Digital Mobile Radio) communications and software.

DMR nets are becoming more active on Tuesday evenings at 7:00pm on the BrandMeister TalkGroup 310015. Those with DMR radio and hotspot are welcome to join in. Those who would like to but do not know how, join the groups.io group and ask — we will help.



We would like to thank Brad for the use of TG 310015.

There is also a FLARC "digital-voice" channel on slack for "real time chat" and a sub-group on our host at

<https://FairLawnARC.groups.io/g/DigiVoice/>

For those interested in joining all the Digital Voice excitement, Contact Bob H. at:

KD2BKD@optonline.net
for information on the Digital Voice SIG.

Or just go to the club website <http://FairLawnARC.org> and use the "Join Special Interest Group(s)" link on the left.



Radio Monitoring Special Interest Group Update

monitoring@FairLawnARC.groups.io

A Special Interest Group SIG for those interested in SWL and other radio communications monitoring.

Greetings fellow monitoring enthusiasts.

I thought that this would be a good time to take a look at a few lesser known but interesting parts of our radio spectrum and add a few more communications tools to your inventory that you may not be aware of.

Do you have family members or friends who would benefit from two-way radio communications but aren't interested in the technical side as we in amateur radio are? You may want to consider the FRS, MURS, or GMRS. All of these services are designed for local communications of a personal nature.

The Family Radio Service [FRS] uses frequencies in the 462 and 467 MHz range. Users are limited to hand held radios with 500mW power, a 2.5 KHz bandwidth and a non-removable antenna. You do not require a license to use FRS. All equipment must be type accepted for FRS use, so you cannot use modified amateur equipment.

You can buy equipment at places like WallMart and other big-box retailers as well as on-line.

A step up from the FRS is the Multi-Use Radio Service (MURS). MURS uses frequencies in the 151 and 154 MHz range with a power limit of 2 watts and a bandwidth of 2.5 KHz. Unlike FRS, you can use external antennas. MURS is license free but all equipment must be type accepted for MURS. You cannot use modified amateur equipment.

The best sources of type accepted equipment for MURS are found on-line.

The FRS and MURS services use simplex. Repeaters are not permitted.

The General Mobile Radio Service (GMRS) uses frequencies in the 462 and 467 MHz spectrum. There is a power limit of 50 watts and external antennas can be used. Repeaters are permitted. A license is required. You can get one on-line through the FCC. See their webpage for more information. It cost \$35 and is good for ten years. No test is required.

The FRS, MURS and GMRS are covered in FCC Part 95 of the rules and regulations. Just as in the FRS and MURS,

Continued on next page.

Radio Monitoring SIG Update, continued.

you can only use type accepted equipment in the GMRS.

If you don't want to spend the big bucks for land mobile equipment for use in the GMRS (such as Motorola, Harris, and others) there are cheaper alternatives from Wouxun that are type accepted for Part 95 GMRS use. Check the usual on-line sources for suppliers.

When listening to the GMRS frequencies you will find a plethora of users such as: family and friends keeping in touch, React groups, CERT teams and radio enthusiasts - some are also hams. Some of the conversations may become very ham radio like.

In addition to my amateur license I also hold the GMRS call of WQXD374.

MURS Frequencies

Channel	Frequency, MHz
1	151.820
2	151.880
3	151.940
4	154.570
5	154.600

FRS And GMRS Frequencies

Channel	Freq, MHz	Channel	Freq, MHz
1	462.5625	12	467.6625
2	462.5875	13	467.6875
3	462.6125	14	467.7125
4	462.6375	15	462.5500
5	462.6625	16	462.5750
6	462.6875	17	462.6000
7	462.7125	18	462.6250
8	467.5625	19	462.6500
9	467.5875	20	462.6750
10	467.6125	21	462.7000
11	467.6375	22	462.7250

If you have any questions, comments or suggestions on topics for me to cover in future articles, feel free to E-Mail me at dmarthouse@gmail.com

73, happy monitoring and the best to you and yours for 2023.

de N2AAM

Need A Resolution? Take The 2023 Ham Challenge!

How many boxes can you tick off during the upcoming year? Here is a quick overview of some of the activities you can try or do, to keep yourself busy and motivated during 2023.

Band Worked	Mode Worked	Activity (or mode of op)
<input type="checkbox"/> - 2,200 M (135 kHz)	<input type="checkbox"/> - SSB	<input type="checkbox"/> - Repeater QSO (2 M and up)
<input type="checkbox"/> - 630 M (472 kHz)	<input type="checkbox"/> - CW	<input type="checkbox"/> - Repeater QSO (10 or 6 M)
<input type="checkbox"/> - 160 M (1.8 MHz)	<input type="checkbox"/> - AM	<input type="checkbox"/> - Simplex FM QSO (VHF/UHF)
<input type="checkbox"/> - 80/75 M (3.5/3.8 MHz)	<input type="checkbox"/> - FM	<input type="checkbox"/> - SSB QSO (VHF/UHF)
<input type="checkbox"/> - 60 M (5.3 MHz)	<input type="checkbox"/> - PSK (31, 63)	<input type="checkbox"/> - CW Contact
<input type="checkbox"/> - 40 M (7 MHz)	<input type="checkbox"/> - FT4	<input type="checkbox"/> - Contest Contact
<input type="checkbox"/> - 30 M (10.1 MHz)	<input type="checkbox"/> - FT8	<input type="checkbox"/> - Satellite Contact
<input type="checkbox"/> - 20 M (14 MHz)	<input type="checkbox"/> - Other WSJT- X Modes (FSK441, JT6M, JT65, etc.)	<input type="checkbox"/> - Fox Hunt (ARDF)
<input type="checkbox"/> - 17 M (18 MHz)	<input type="checkbox"/> - JS8call	<input type="checkbox"/> - WinLink Contact
<input type="checkbox"/> - 15 M (21 MHz)	<input type="checkbox"/> - Packet radio (AX25/APRS)	<input type="checkbox"/> - EchoLink Contact
<input type="checkbox"/> - 12 M (24.9 MHz)	<input type="checkbox"/> - SSTV or Fast Scan ATV	<input type="checkbox"/> - WAS (work all 50 states)
<input type="checkbox"/> - 10 M (28 MHz)	<input type="checkbox"/> - Digital FM- DMR, D-Star, Fusion, etc.) including Hotspots	<input type="checkbox"/> - Work 50 countries
<input type="checkbox"/> - 6 M (50 MHz)		<input type="checkbox"/> - Work 100 countries
<input type="checkbox"/> - 2 M (144 MHz)	<input type="checkbox"/> - Pactor, Clover, Olivia, Throb, DominoEX, MT63, Thor, AMTOR, etc.	<input type="checkbox"/> - WAC- Work All Continents
<input type="checkbox"/> - 1.25 M (222 MHz)		<input type="checkbox"/> - POTA (Parks On The Air) or SOTA (Summits On The Air) Chaser Contact
<input type="checkbox"/> - 75 cm (440 MHz)	<input type="checkbox"/> - FAX or Hellschreiber	
<input type="checkbox"/> - 33 cm (902 MHz)	Club	<input type="checkbox"/> - POTA or SOTA Activation
<input type="checkbox"/> - Higher Microwave Bands	<input type="checkbox"/> - Attend an ARC meeting	<input type="checkbox"/> - POTA Activator
Build or Install		<input type="checkbox"/> - Present at ARC meeting
<input type="checkbox"/> - New VHF/UHF Antenna	<input type="checkbox"/> - Head a committee	Build/Test/Repair
<input type="checkbox"/> - New HF Antenna	<input type="checkbox"/> - Attend a Hamfest	<input type="checkbox"/> - Electronics Kit or Homebrew
<input type="checkbox"/> - New Mobile Radio	<input type="checkbox"/> - Teach a Licensing Class or be a VE	<input type="checkbox"/> - Use an Antenna Analyzer or nano-VNA to measure
<input type="checkbox"/> - New Mobile Antenna	<input type="checkbox"/> - Mentor a new ham	<input type="checkbox"/> - Fix non-working Radio
<input type="checkbox"/> - Computer/Radio Interface	<input type="checkbox"/> - Write a newsletter article	<input type="checkbox"/> - Arduino, Rasp Pi or other microprocessor Project or Program
<input type="checkbox"/> - Club building project	<input type="checkbox"/> - ARRL Membership	



Order a FLARC Shirt!

Nomar NP4H is taking orders for a spiffy bright red (really sort-of maroon) polo shirt for Field Day. This is a pilot for a possible new vendor and will match our current shirts which are available by mail. This order is from a reputable local vendor. The price is \$25.00 with your call sign sewn in.

Contact Nomar directly at np4h@aol.com.

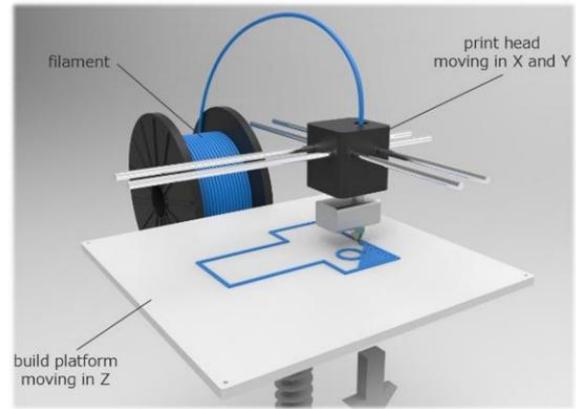
3D Printing

By Robert Holstrom – KD2BKD

3D printing, known in the professional industry as additive manufacturing, is a process for making an object in layers. Most people know this can be used to make plastic parts, but there are several other materials like concrete which a large machine can manufacture at home.

There are several different types of additive manufacturing machines. Most know of the type that use filament and are very cost effective. Others use lasers, jetting techniques, laminating, and electron beam. These other types of machines can run in the hundreds of thousands of dollars. We will concentrate on simple filament type machines.

The common filament type of additive manufacturing machine is called Fused Deposition Modeling or FDM. Most FDM systems deliver the filament from spools which are fed to a heated extruder to be placed on a movable platform. After the bottom layer is placed the extruding system is raised just fractions of an inch to lay down the second layer. This continues with possibly hundreds of layers to create a 3d plastic part. The accuracy of the part is dependent on the extruder diameter and precision motion of all the motors in the process. The more precise the part, the longer the additive manufacturing process takes.



There are several types of plastics that can be used to manufacture the parts out of:

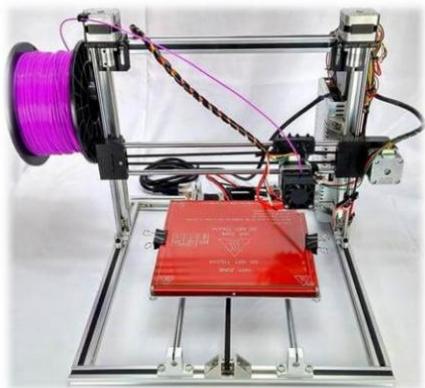
PLA – Polylactic Acid – The most widely used type of plastic for 3d printing. It is reasonably priced, easy to print, available in many colors. It has a lower than other plastic melting point 200 °C. This also means if you leave it in the sun in your car it may deform. It is more brittle than other plastics. There is no bad toxic odor when using. Can be used without heated bed. Good dimensional accuracy

ABS – Acrylonitrile Butadiene Styrene – Low cost, very durable. It has a high melting temperature 240 °C. Open space or a very well ventilation is highly suggested. There is an odor when in use. Requires a heated bed. Parts tend to shrink and warp.

PETG - Glycol Modified version of Polyethylene Terephthalate – Semi-Flexible and fairly strong. It has a high melting temperature 240 °C. No strong smell. Can become stringy when printing. Heated bed suggested.

Other types of filaments are available, but these are the most common 3. Many of the other types require higher heat.

Bob Holstrom – KD2BKD, continued.



When I was investigating 3d printers years ago I was sure I needed to spend at least \$1000.00. I went to several local “makerspaces” to see if I could use their machines. The answer was yes for the Bergen Makerspace in Hackensack. They also told me that they were having a multi-week class where all the students would be building their own 3d printer at a cost of about \$500.00. Very intriguing so I looked up information online and found a “RepRap” style kit for under \$300.00 and was sold. I just bought the kit and assembled it in about 10 hours. The RepRap runs via

Arduino which was included and can take the data via USB or flash card. The unit I bought was found at the following website: <https://www.3dprintersbay.com/folgertech>

Some suggestions on what to look for in a 3d printer are:

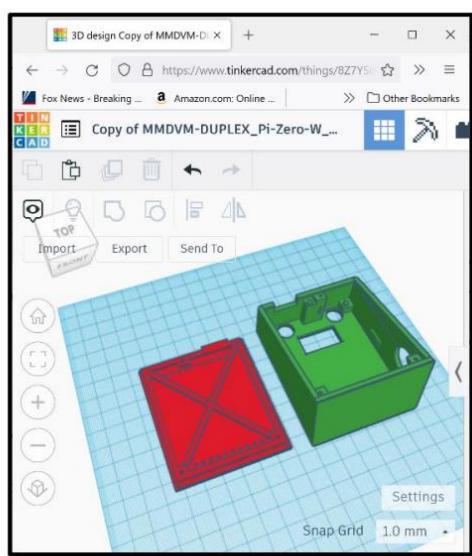
Print Size – Size maybe important to you. With my machine I have designed parts about 4" x 4" x 5" and even some thin 10" parts diagonally which is about all it can take even though the build area is stated at 8" x 8" x 6". The 4" x 4" x 5" part took 24 hours.

Heated Platform – A heated platform or bed will help when manufacturing more complex projects with tough filaments. Without the heated bed the model may cool too quickly and warp on the edges.

LCD Controller with SD card reader – On the FolgerTech RepRap it was an option which makes it self-contained to print and control without USB to a PC.



Enclosure – Many units are enclosed in plexiglass box which is a nice feature.



Self-Leveling Bed – I have spent quite a lot of time leveling the bed on the FolgerTech RepRap. Sometimes not easy to get right.

Upgradable – Some off the shelf 3d printing units do not have any upgrade path. A RepRap style 3d printer is a true “Maker” machine as many upgrades and accessories are available from others. You “print out” those newer upgrade parts and purchase some hardware to update the printer yourself. Even dual extruders are available. RepRap spare parts are even available at Amazon.

In the future I will write about the actual process of creating a simple 3d model and then slicing to make a 3d print file that can be used to manufacture parts from.

Around the Shack

Hal Kennedy N4GG

KIWI SDR

I'm currently QRT at my new QTH, but able to listen to HF via the internet. There is a great internet-based resource for listening - it's the KIWI SDR network.

A KIWI SDR is a remotely tunable receiver. There are currently 660 of them on-line, located around the world. Many are in North America and Europe, but there are some in Africa, Asia, South America and Oceania as well. You can connect to any of them – they are open to the public. Connecting requires nothing more than a web browser.

The list of KIWI SDR receivers together with their clickable connection links can be found here:

<http://kiwisdr.com/public/>

That URL returns the list shown in Figure 1. I never use the list. In the upper corner of Figure 1 is a blue circle labeled KIWISDR Map. I start there. That blue circle returns the world map shown in Figure 2.

Receiver Name	URL	Status
0-30 MHZ SDR, WELLBROOK ALA1530LN LOOP, SWL/J002JH, UNITED KINGDOM IXWORTH, SUFFOLK, UK	http://ixwortsdr.hopto.org:8073	GPS, LIMITS, HF
0-30 MHZ SDR, LA2G, NORWAY	http://la2g.ddns.net:8073	GPS, LIMITS, HF
0.3-30 MHZ 4-CHANNEL SDR, W7PUA ADAIR VILLAGE, OREGON, USA	http://w7puar-2.ddns.net:8073	GPS, LIMITS, HF
0-30 MHZ SDR CLUBSTATION DLOHC HATTINGEN NRW, GERMANY	https://fgt.770net.de:8073	GPS, LIMITS, HF
0-30 MHZ VK2GGC SDR RX 1 - HUNTER VALLEY NSW AUSTRALIA	http://vk2ggc.ddns.net:8073	GPS, LIMITS, HF
0-30 MHZ SDR, DL6NEP NORTHERN BAVARIA, GERMANY	http://dl6nep.banta.com:8073	HF

Figure 1. The KIWI Network opening screen listing all the receivers.



Figure 2. The map showing receiver locations and status.

Around the Shack, continued

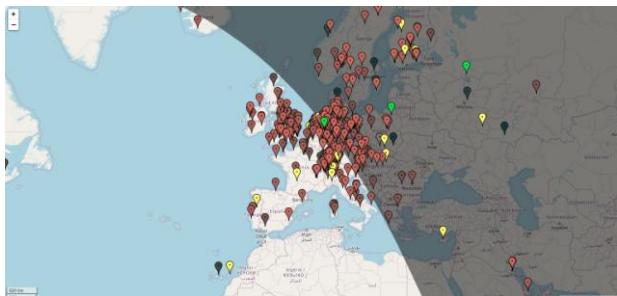


Figure 3. The map expanded to show Europe.

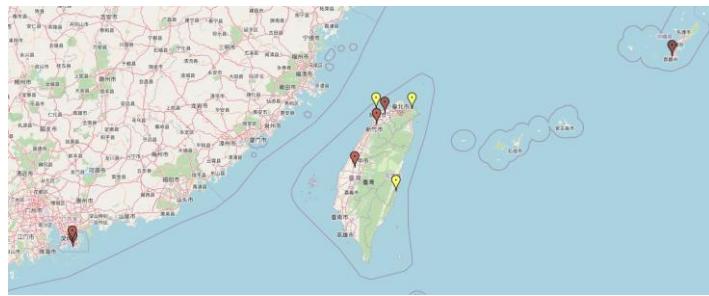


Figure 4. The map expanded to show Taiwan and China.

The map can be expanded for a good look at where individual receivers are, together with a color indicating the status of each receiver. With rare exception, individual KIWI SDRs can provide eight connections at once. The colors indicate, among other things, if a receiver has an available user slot or if all eight slots are taken. There is a link to a legend explaining the colors in the lower left corner of the map. You don't need the legend to get started. SDRs that show up as yellow are full. Try any that aren't yellow.

Figure 3 shows the map expanded to show Europe.

Figure 4 shows the map expanded to show Taiwan and China – more on that later.

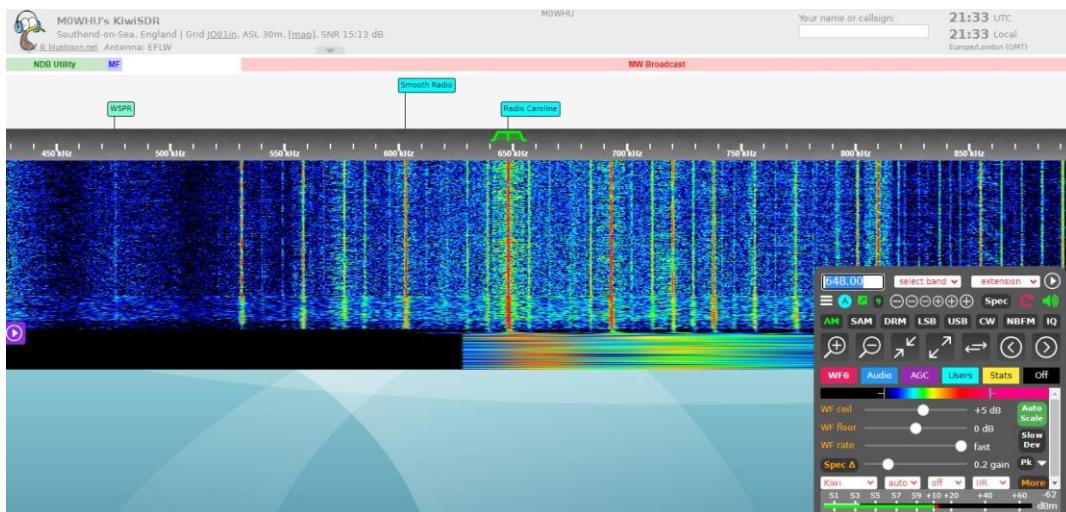


Figure 5. The receiver control panel, tuned to Radio Caroline on 648 KHz.
All KIWI receivers have the same controls.

Figure 5 shows the receiver control panel you will see when you connect. I won't explain all the controls here – experiment! You can set the receiver to any HF frequency from zero to 30 MHz by typing the frequency in, or by dragging the waterfall display to a frequency of choice.

There are buttons to select mode and a row of small + and – buttons to move the frequency up and down in increments. Your left and right keyboard keys will also move the receiver's frequency in small increments. The keyboard up and down keys change the receiver's bandwidth. The large + and – buttons expand the waterfall. I usually hit the large + button many times to get a good look at the spectrum close-in to the frequency I'm interested in.

In the upper right corner of the control panel you will see a pull-down menu called "Extensions." Save exploring the extensions until you have mastered simply listening. When you are ready, the extensions menu can launch decoders for RTTY, CW, FAX, WSPR, SSTV and many others.

Around the Shack, continued

Here's an example. If you click on FAX the weather FAX control panel appears in the lower left corner of the screen. If you select a region and station there, weather FAX images will appear, *if the station you selected is transmitting and the receiver you are using can hear it*. See Figure 6. Weather FAX is not broadcast continuously on HF. FAX transmit schedules can be found on the internet.

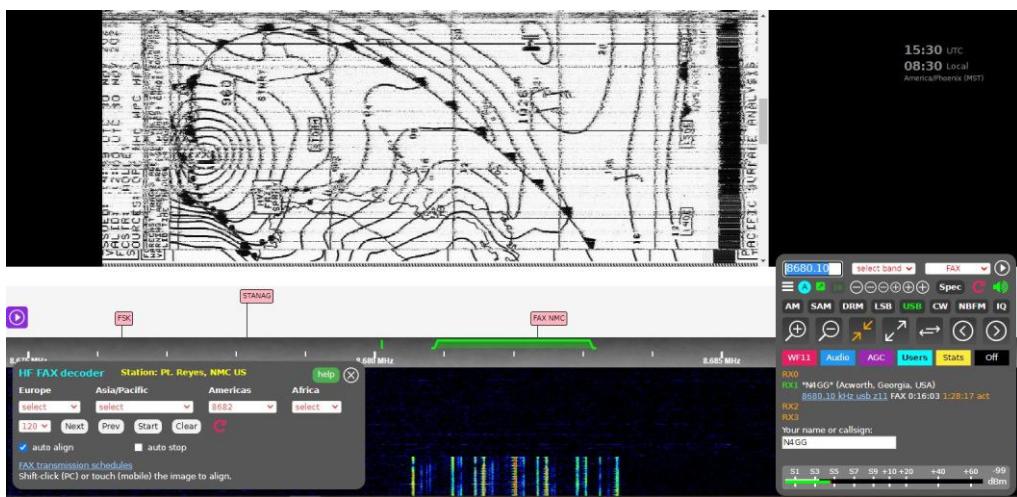


Figure 6. Weather FAX as transmitted from Point Reyes, California, on 8680 KHz.

Some Experiences

I've spent a few hours connected to receivers in Japan listening to AM broadcast. Mostly I hear people speaking Japanese (seems reasonable), but there is English language content too. Also, there is a lot of music. In the US most music migrated from AM to FM decades ago - not so in Japan. Some of the music I hear is Asian, but some is "Western." There is lots of rock 'n' roll. It's intriguing to hear what people in distant lands listen to.

I've checked propagation using WWV. Trying receivers around the world, I've been able to hear WWV on at least one frequency on nearly all of them. I was also able, finally, to hear WWVH in Hawaii, by listening to a KIWI SDR receiver on Hawaii. On that receiver I also heard more details about the eruption of Mauna Loa than were available from mainland news outlets.

I've listened to WWVB on 60 KHz – the station that sets "Atomic Clocks" several times a day (atomic clocks are not atomic). Try as I might, I have never heard that signal on the US East Coast. That is long-haul DX on VLF. Somehow atomic clocks hear and decode WWVB. I suspect they do it with a combination of synchronous timing and exceptionally narrow filters. Tip: Aside from being useful for understanding VLF propagation, WWVB is not very interesting!

I've listened to an old favorite - Radio Caroline. Pirate radio was big in the 1960s and Caroline led the pack with a 50 KW ship-board rig just outside the territorial limits of the UK. There are several books available from Amazon, both paperback and Kindle, describing the decades-long efforts of the UK government to shut Caroline down. They never succeeded. It's fascinating reading.

Caroline is still on the air and you can listen to it live via streaming on the internet. Also, if you own one of Amazon's echo dots, aka Alexa, you can say "Alexa, play Radio Caroline" and it will! Meanwhile, that's not as satisfying as actually hearing the station on the air. Today, Radio Caroline broadcasts on 648 KHz, on what's called "medium wave" in Europe. The station only runs 4 KW these days, from a ship docked in the south of England. It can be received on several KIWI SDR receivers near the southeast coast of England.

Around the Shack, continued

It can also be heard in parts of mainland Europe at night. Experiment and see how you do DXing Radio Caroline. As sweet irony, Caroline's current antenna is a retired BBC tower.

I've listened to US contest stations on many different receivers in Europe and Asia. This was particularly interesting during ARRL Sweepstakes when US stations were not trying to work DX. I also listened to the 160 contest this past weekend. I didn't hear much of the US on European receivers – low band conditions were terrible. East coast stations were loud on US West Coast receivers.

I've tried some US broadcast band DXing from afar. I have heard the three big 50 KW stations in NYC – WFAN (660 KHz, formerly WNBC), WABC (770 KHz) and WCBS (880 KHz) on receivers on every continent. Those transmitters are in the "meadowlands" in Rutherford, NJ and are non-directional "clear channel." They really get out. I grew up in the NYC area and visited those transmitters in the 1960s. I can attest the antennas are in a meadow – one that's often an inch or two under water.

I've listened to myself (not recently) at various times and on various bands from many DX locations. This can be sobering. I was never able to hear myself in parts of Asia, including during times of good propagation.

Some Notes

- Should you wish to use a remote receiver to cheat while DXing or contesting, be advised there is a three second delay in the audio from KIWI SDRs. It is nearly impossible to break a DX pileup listening with a three second delay - you can't get the timing right.
- At the top of the screen for each receiver is the name and location of the receiver as well as the station's altitude and antenna. Some SDRs have poor antennas. Many of those are small loops, magnetic and otherwise. The KIWI network is helpful in understanding what antenna types receive well. I quickly leave one receiver for another if I don't hear much or see the antenna is likely inferior. *There are* receivers with first-rate antennas - those are the fun ones to tune.
- Looking at the identifying name on each receiver, you will find many are owned and operated by hams. The ham-owned receivers tend to be the better ones.

Going Geopolitical

Closely scrutinizing the map of available receivers I've realized some are located in geopolitical hotspots. For example, there are seven receivers on Taiwan, and only one in all of mainland China (excluding two in Hong Kong). Would China allow me to connect to the only Chinese KIWI SDR receiver and listen to Taiwan? *If I could* than anyone in China could. I had suspicions.

It didn't take long to find out. While nearly all KIWI receivers will connect to eight users at a time, the only receiver in China supports only four simultaneous users and those slots are usually taken. When I have connected, it was apparent the receiver was too far from Taiwan to receive Taiwanese AM broadcast (430 miles). Actually, that receiver is in central China and too far from anywhere to hear anything other than what the Chinese government would like you to hear.

Given the censorship prevalent in China, I suspect the lone Chinese receiver may be the only receiver Chinese citizens can connect to. I'll speculate the IP address of those who connect is monitored.

I wonder what other remote receives might be partially or fully blocked? There are several on the Ukraine/Russia border – I'll be trying those next.

Summary

Give the KIWI receivers a try. Finding them is easy. Operating them is easy. They will give you a look at the HF spectrum that you can't get from home, no matter where home is.

If you are technically minded and so inclined, you can set up your own KIWI SDR and place it on the network for all to enjoy.

73, Hal N4GG

Satellite Special Interest Group Update

Satellite-SIG@FairLawnARC.groups.io

A Special Interest Group SIG for those interested in amateur radio satellites, as well as others like weather, GPS, etc..

We welcome everyone interested in all types of satellite communications. Some interests are AMSAT, ARISS, receiving weather maps from satellites, APRS via ISS, and much more.

New satellites XW-4 (CAS-10) and CAS-5A (FO-118), both from the Chinese Amateur Satellite Group, were launched in December and should be ready for operation soon.

Status of ISS ham radio stations as of December 23, 2022:

Columbus Module radio:

Kenwood D710GA (CONFIGURED) mode is for cross band repeater (145.990 MHz up {PL 67} & 437.800 MHz down). Powered off during docking and undocking of crafts.

Service Module radio:

Kenwood D710GA (CONFIGURED) mode is for packet operations APRS (145.825 MHz up & down). Powered off during docking and undocking of crafts.

For current status of ARISS:

<https://www.ariss.org/current-status-of-iss-stations.html>

For those interested in joining contact Bob H. KD2BKD@optonline.net for information on the Satellite-SIG. Or just go to the club website www.FairLawnARC.org and use the "Join Special Interest Group(s)" link on left.



In A Nutshell



Winter is upon us and so is Winter Field Day; most of us will be working from home as the brutal cold has quickly set upon us, making almost all of us staying indoors.

Now is the time for visiting old friends on the air and catching up with technical reading between snowstorms. There are probably several projects on the shelf just waiting for completion!

I have been on HF on 3855 most every night at 8pm to 10pm on a nationwide net meeting up with old and new friends. Radio is a great way to keep in touch without leaving the comfort of your home.

So get on the air and TALK to SOMEONE, reach out and have a good conversation or just listen in to some of the technical talk and thereby learn something new.

When not on the air be safe and remember to slow down when driving, you will also save gas, and wear and tear on your vehicle! Out where I live you almost need to have a 4-wheel drive vehicle for some of the weather we get here out in the sticks.

Be safe and keep warm!

Fred Wawra, W2ABE, 73!



News and Notes

Congratulations to FLARC member Thom Guida, W2NZ who is the recipient of an honorary lifetime membership to the Long Island CW Club (LICW) for his outstanding contributions. If you haven't seen it, please check out the [YouTube video](#) that Thom produced of the recent Kawfee Tawk presentation by Howard Bernstein, WB2UZE & Jim Crites, W6JIM of LICW.

And also, congrats to Thom and the marketing team for reaching the 1,000 subscriber mark on the FLARC YouTube Channel — <http://youtube.FairLawnARC.org>

What Is It? – Answer To Last Month's Question**By: Fred Belghaus W2AAB**

I thought this would be an easy one, but it wasn't. Alan, WB2HJZ identified it as a Resistor Substitution Box. Bill, WA2WL, said it's a Wheatstone Bridge, and that it could also be used as a Resistor Substitution Box. Both these gentlemen are E.E.s, so I decided to enlist the help of a third E.E. to act as a sort of referee, in hopes of resolving this mystery once and for all. The third E.E. was Steve, WI2W.

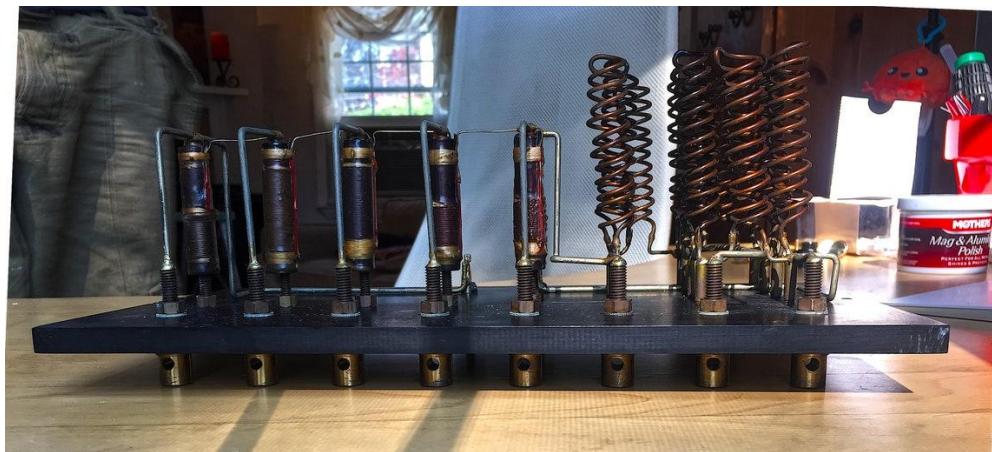
Steve agreed with both answers. Yes, it is a Wheatstone Bridge, and yes, it can also be used as a Resistor Substitution Box. Back to square one. Or maybe not.

Steve pointed out that all the sources online that provide images of a "vintage Wheatstone Bridge" resemble the unit above. I agreed with that, so I conclude then, that by consensus, that's what it is. But, it can also serve as a Resistor Substitution Box! But the tipoff in helping me decide in favor of a Bridge is those key-switches along the bottom on the unit. They are there to provide a means for making a momentary test, rather than an in-circuit substitution.

Our mystery item was actually made about 1930 in England, by a company whose name is abbreviated as "App. Mfg. Co. Ltd.", which may mean "Apparatus Manufacturing Company, Limited," about which I can find nothing further online. Many Wheatstone and similar bridges include a galvanometer, but this one does not, so an external Galvanometer would be required.

Just for the record, here are two views of a typical Resistor Substitution Box manufactured in the U.S.A. around the same time as our mystery item.

What Is It? – Answer To Last Month's Question, continued



Outside and inside views of a Leeds & Northrop Resistor Substitution Box

Though most of the resistors in this unit appear to be standard carbon composition types, note the air wound coils of resistance wire at right to provide the very low resistance values. Note also that there are no momentary key-switches, as on a bridge.

It's clear that there are a number of differences between this Resistor Substitution Box and the Wheatstone Bridge from last month's "What is it?"

I hope you've enjoyed this rather challenging item.

73,

Fred W2AAB

What Is It? – January, 2023

By: Fred Belghaus W2AAB



Here is a classic piece of radio history. For many years, it was used in research laboratories, by engineers and designers of radio equipment, engineering schools, and even by some amateurs as a reliable measurement instrument.

But what is it, and how was it used?

For extra credit, where was it made, and approximately when?

73,

Fred W2AAB

DX Special Interest Group Update

Sunspot cycle 25, although it is just starting, has been giving us some very nice DX signals on the upper HF bands lately. And “adding icing to the cake” there are several DXpeditions active or soon to be active.

FT8WW has been active from Crozet Island (ask your neighbor where that is!) but it seems rare that his signal is strong here on the East Coast of the USA. He is one operator who managed to get permission to operate from the Research Station on the island, and has been hampered by ‘silent times’ mandated by the admin, as well as bad weather/winds and what seems to be an antenna that favors Europe. But his ClubLog page indicated almost 17 thousand QSOs so far, with almost 10 thousand ‘unique calls’ — so he is not wasting his time on the expedition!

<https://clublog.org/charts/?c=FT8WW#r>

Another DXpedition just came on the air [QRV] on January 6th and in the 3 days since then they have made over 27 thousand QSOs with almost 9 thousand ‘unique calls’ — but this is not a one-man show! At times they have been seen running up to five ‘channels’ on FT8, all with nice signal strength. TN8K is operating from the Congo, in western Africa. Similar to the above link, they have a ClubLog page which shows you which areas of the world they are receiving best at ‘real time’ for any band. Click on the link at upper right labeled “Geo Propagation” to get a view of the world centered on their QTH!

<https://clublog.org/charts/?c=TN8K#r>

If you think you completed a contact with them but are not sure, the same page lets you enter your call and see if you are in their log; if not, try again... if yes, no need to bother them by calling again. This lookup is real time for TN8K, and seems to be quite current for FT8WW. Another feature of the chart that appears is that it shows you what bands and modes the DX station HAS actually operated – example in the column to the right. BTW, this also alerts you to possible

“pirate” operation, which apparently has been a problem with the Crozet Island expedition.

W2JC

W2JC has not worked FT8WW on any band slots

Propagation from UNITED STATES OF AMERICA (Z5) / USA W2 / STATE:NJ / ZONE: 5 / Geo Propagation Map



You can see from this chart that Thierry has not operated at all on SSB except on the 13cm band; so if you heard a station using his call it's a pirate. ☹

How can you know which ‘rare’ locations will be on the air and when? Every month, Ed WX2R posts the A.R.I. DX Bulletin to the DX SIG and the Monitoring SIG areas [and email] of our groups.io ... this weekly report lists special events and DX operations around the world. I have found that a good way to use this list is to add calls you are interested in to the ‘filter’ area of the <http://dxsummit.fi/#/> spotting list —

The screenshot shows the 'Spots' section of the DX Summit website. At the top, there are buttons for 'Spots', 'Spot Search', 'Daily DX', 'News', 'Radio Arcala', 'Visit Azores', 'Feedback', and 'Tutorials'. Below this is a search bar with a 'Search' button. Underneath the search bar are several dropdown menus for 'Filters' containing DX callsigns such as '2022dec', '3D2AG/p', '9M6NA', 'A60F1FA', 'C6AGU', 'CN22CWO', 'DV8KH7EA', 'DXONE', 'E7BOSNIA', 'TM8AB', 'JAIVNE/6', and 'PA1OFF'.

Note that I have put the year and month in the first slot, so I know when it is valid. You can then keep this page open in your browser and check now and then to see which DX is on the air and what band. [Make note of where the “Spotter” calls are from – if you only see spots by Euro stations then probably you won’t hear the DX that is spotted.]

Another good source of current DXpeditions and DX operations is the chart at the top of the FLARC web Calendar page, which is always updated for the current month – and you can click on a call to get more details on that expedition.

<http://calendar.FairLawnARC.org>

— Jim W2JC

HF propagation forecasts for the year 2023



By: Martin Butera PT2ZDX / LU9EFO
martin_butera@yahoo.com.ar

Introduction

When my friend Nomar Vizcarrondo (NP4H) proposed to me to write a special article about how the propagation will be in 2023, from here to the southern hemisphere Brazil, for, I confess I was nervous, because it always ends up being a controversial topic, but without hesitation I accepted quickly the challenge.

Currently there is some software and several specialized websites, which are dedicated to the interpretation of propagation forecast charts.

In recent years it is common for any radio amateur or radio listener to become an expert in reading data such as: A-INDEX, K-INDEX, X-RAY, MUF, among others...

But, without a doubt, what we pay most attention to is the famous "SFI" of the acronym in English (Solar Flux Index).

Which is very easy to interpret, the higher the number of sunspots, the higher the SFI value. It is taken as a good reference that the value remains above 100, in this way we guarantee a good propagation in the HF bands.

So, getting used to it, the first thing we do is check how the SFI number is on our computer and if the rate is low we don't even turn on our transmitters or receivers, which I consider a serious mistake.

So, following the challenge of writing an article about what the propagation conditions will look like for the next year, I decided, instead of relying on data reads, to start from the source itself.

If propagation depends on SFI, that means we are talking about the Sun, but how much do we really know about the Sun?

To answer this and other questions, I went to the planetarium in Brasília (capital of Brazil), to interview Marcelo Domingues (Figs.1 to the 5.), astrophotographer and member responsible for the CAsB (Clube de Astronomia de Brasília). He is also a member of BRAMON (Brazilian Meteor Monitoring Network) and passionate about the Sun, which he has studied for over 30 years.

Let's start!!!



Image: Marcelo Domingues and Martin Butera (PT2ZDX / LU9EFO),
at the planetarium in Brasília DF, starting the interview

Martin Butera PT2ZDX / LU9EFO: How could you define me what the Sun is?

Marcelo Domingues: The sun is a star, which is the center of our solar system. The electromagnetic radiation emitted by the Sun generates heat and is transformed into solar energy that feeds plants through photosynthesis, determines the climate, allows humans to carry out their daily activities, among many other functions.

Martin Butera PT2ZDX / LU9EFO: What is the sun made of?

Marcelo Domingues: The Sun is mainly composed of hydrogen, which at high temperatures converts to helium. This process maintains a high concentration of energy that allows the star to continue to live. You can also find amounts of nickel, iron, gold, oxygen and many other elements that we know of on Earth.

Martin Butera PT2ZDX / LU9EFO: What are the parts of the Sun?

Marcelo Domingues: The Sun is divided into two zones, the inner zone and the outer zone. The first is the center of the Sun, where energy is created and consists of a core, a radiant zone and a convective zone. Then follows the outer part that is known as the solar surface, which is made up of the photosphere, the chromosphere and the corona, the latter being the one we can see.

Martin Butera PT2ZDX / LU9EFO: How is energy produced inside the Sun?

Marcelo Domingues: The innermost part of the Sun is where the magic happens. The hydrogen, which is in the core, is transformed into helium produced by temperature reactions. This creates particles that carry electromagnetic radiation. Each particle then travels from the core to the last layer of the solar surface with the movement of boiling gasses. The process from the creation of energy to its arrival in the solar corona takes more than 1 million years. It's impressive, isn't it?

Martín Butera PT2ZDX / LU9EFO: Does the sun move?

Marcelo Domingues: Yes, indeed everything in the universe is in constant motion and the Sun is no exception. Although we cannot perceive it with our senses, the Sun rotates around its own axis and this process takes approximately 27 days. In addition, the Sun moves with the Solar System within the Milky Way, as it also rotates on itself.

Martín Butera PT2ZDX / LU9EFO: What are sunspots?

Marcelo Domingues: Sunspots are areas of intense magnetic activity. The magnetic fields in these areas are enormous and the sun's surface is modified as a result. This causes the

surface temperature to drop in these areas, causing a darker area, which we call sunspots, to be perceived.



Image: Marcelo Domingues and Martin Butera (PT2ZDX / LU9EFO), talking about the sun, at the planetarium in the city of Brasilia DF

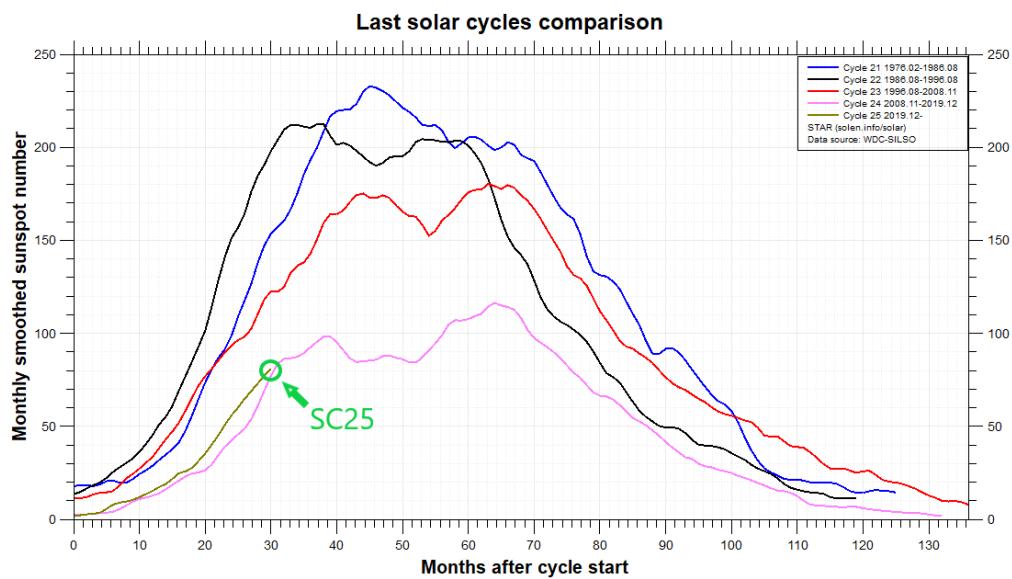




Image: Marcelo Domingues and Martin Butera (PT2ZDX / LU9EFO), in another moment of the interview outside the planetarium in Brasilia.

Martin Butera PT2ZDX / LU9EFO: Besides sunspots, are there other phenomena that the sun produces that could be relevant to our communications?

Marcelo Domingues: Yes, of course, an important one is the CME or Coronal Mass Ejection, this is an emission of plasma ejected from the Sun, which, when reaching the Earth's atmosphere, affects the Earth's magnetism.

We also have solar flares, where the main effect on the earth is the increase in incoming solar radiation, this radiation covers the entire spectrum of electromagnetism.

Other elements are X-rays and ultraviolet rays, which generate some kind of effect on radio communications because they affect the ionization levels of the atmosphere, specifically the friend of all radio amateurs, the ionosphere (laughs...)

Martin Butera PT2ZDX / LU9EFO: How could you briefly explain to us what a solar cycle is?

Marcelo Domingues: A solar cycle is the 11-year period in which the polarity of our star's magnetic field changes.

In this cycle, the sun reaches a peak of activity for two to three years in this period and slowly returns to a dormant process for 3 to 4 years, slowly reactivating for 3 to 4 years again until it reaches its peak again.

These multi-year observations help astronomers understand the signals that indicate the slowing down of one solar cycle and the beginning of the next. We are currently in solar cycle 25.

Martín Butera PT2ZDX / LU9EFO: For us radio amateurs, the previous cycle didn't look good at all. I ask you, was it because the sun would be less active?

Marcelo Domingues: Cycle 24 was actually very idle and very long, and is considered to be one of the worst in the entire tracking figure.

If the sun were less active, it's something we can't determine as easily if we take the last cycle 24 as a reference.

This is just a trend, showing that the number of sunspots was lower, but again, this number is just a rough guide, because there is considerable variation in this.

The sun doesn't always look the same. There are cycles in which its activity is higher and in other cycles like the previous one, its activity was very low, producing what we call a "valley".

So far only twenty-four cycles have been studied and recorded and we are at the beginning of cycle twenty-five. Therefore, it would be too hasty to have an answer as to whether the sun is slowing down its activity.



Image: Marcelo Domingues and Martin Butera (PT2ZDX / LU9EFO), at another point in the interview
(in the background we can see the great planetarium of the city of Brasília DF)

Martín Butera PT2ZDX / LU9EFO: In your experience, what are the propagation predictions for us radio amateurs during cycle 25?

Marcelo Domingues: The propagation in the ham bands is expected to improve in the coming years.

I think the predictions can be good. There are already signs that the sun has already started to "wake up". We can see this phenomenon that is causing the polarity of sunspots to reverse, which is a very good thing.

Anyway, as I said, we are currently in solar cycle 25, whose maximum, according to experts, could occur in 2024 and should end in 2030. Therefore, at the moment it is impossible to have a more precise answer.

Martín Butera PT2ZDX / LU9EFO: Finally I'm curious to ask you the following: how many years of life does the sun have and how many do you have left?

Marcelo Domingues: The Sun, like all living things, will die at some point. It is estimated that our Sun has a life span of approximately 10 billion years from its formation to the time of its death. He is now half years old. In other words, it's 5 billion years old and still has 5 billion more years to shine. Don't worry Martin, we'll have the Sun for a long time (laughs...)

Final conclusion

As we could read in the interview with Marcelo Domingues, the sun is complex, it is not enough just to interpret the propagation forecast graphs.

In recent years, many radio amateurs have complained that there are not good propagation conditions, which Marcelo Domingues confirmed was one of the worst cycles recorded.

However, it has been shown that during the famous "Stay at Home", in the first mass confinements of the Covid-19 pandemic, radio bands were full, radio amateurs could be heard on all tracks, the most popular radio contests broke participation records, taking into account that the new cycle 25, had just started just a few months before the pandemic, with almost no record of sunspots.

All that participation of active radio amateurs was gradually decreasing.

Perhaps the problem is not that we go through one of the worst and most frustrating solar cycles, as was the 24th and this beginning of the 25th cycle that until now seemed to be ashamed to present itself. I think the problem is not the low solar activity, but that we are at a historic low of activity.

Whether we will have good conditions next year, we cannot know for sure, but the only way to know is to turn on our equipment.



Image: Marcelo Domingues, Martin Butera (PT2ZDX / LU9EFO) and Lígia (Martin's wife and photographer in this article),

- About CAsB

The Brasilia Astronomy Club (CAsB) is an association that encourages and brings together astronomy lovers. The CAsB is not for profit and is dedicated to the study, research, teaching and dissemination of astronomical science. The entity is basically composed of amateur astronomers, some with extensive astronomy courses, and a group of consultants formed by professionals in the field, with a recognized name in the Brazilian scientific community.

- About the Brasilia Planetarium

The Planetarium was inaugurated in 1974, and today it is linked to the Department of Science, Technology and Innovation of the Federal District, being part of the ABP - Brazilian Association of Planetariums.

Visiting hours: Tuesday to Sunday: 7:30 to 19:30 - Monday is closed.

- We had access to the "SpaceMaster" star projector, legend has it, which arrived at the Planetarium in 1970 as part of a debt.

Brazil had sold coffee to East Germany, and as they could not pay them in cash, they sent these projectors as payment.

Along with the "SpaceMaster", the Río de Janeiro Planetarium projector and the University of Brasília (UnB) telescope also came.

The projector is analog and is still active.



Image: The "SpaceMaster" star projector at the Brasilia planetarium

Extra material, fragments of the video interview with Marcelo Domingues

<https://youtu.be/A1bhr1fZ5Ow>

<https://youtu.be/RA8QWr9Lmhs>

<https://youtu.be/OfCyqpA6Pug>



Winter Driving Tips

INCREASE FOLLOWING DISTANCE to 8-10 seconds when driving on icy, slippery surfaces.

DRIVE IN THE LANE that's been most recently plowed, and avoid changing lanes unless necessary.

WHEN DRIVING UP AND DOWN HILLS, observe how other vehicles are reacting and maintain safe distance.

DO NOT USE CRUISE CONTROL when driving on any slippery surface.

STEER AND BRAKE with smooth, careful, and precise movements rather than quick, jerky motions.

TAKE EXTRA CARE when driving on shaded spots, bridges, overpasses, and intersections.

AAA

Contest Corner

– Van W2DLT



You might have noticed there was no Contest Corner column in the December Resonator (at least I hope you noticed it was missing!).

As many of you know, we had a flood in late October. We're on a hill overlooking the lake, so it's improbable we'd ever have a flood from natural causes. Our lower floor consists of my ham shack, my office, a bathroom/laundry room and 3 bedrooms. The flood occurred in late October just as we were packing for our annual trip to Antigua for the CQWW SSB Contest. Our trip was subsequently canceled.

A worker for the Hemlock Farms Community Water Commission had come to install a new water meter. He'd only been on the job for 5 weeks and asked me where the main shut-off lever was. I told him I didn't think there was one, but I showed him the lever (after the meter) that I use when I go away for a few days.



He apparently didn't understand what any 10 year old would: that the lever AFTER the meter would not shut off the water from the street. I was across the hall in my office when I heard a loud "Oh ****"

He'd disconnected the water meter and unleashed a fire-hose sized spray which he could not stop. Long story short -- his boss came and kinked the main inside pipe and went outside to shut off the street valve -- which they couldn't find without a metal detector and backhoe. Meanwhile, 4 inches of water filled all the rooms.

Serve-Pro came to mitigate the water, but they've torn out the entire lower floor (walls and carpet) to the 3 foot flood line and we're still waiting for the Community insurance people to authorize the \$45,000 reconstruction project. It's a wreck.

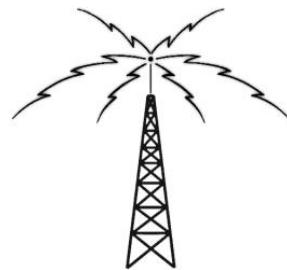
I MISS my ham shack – and have missed working Crozet Island.

But I WILL have the station back on the air (in a modified condition anyhow) so as not to miss the Bouvet Island DXpedition beginning around JANUARY 15....



Not a whole lot of Contest activity during January (lots of small/obscure opportunities) and a few good ones, see below.

--- Kids Day	January 8th	1800Z-2400Z
--- DARC 10meter	January 8th	0900Z-1059Z
--- NAQP CW	January 14th 1800Z - January 15th 0559Z	
--- ARRL January VHF	January 21st 0359Z - January 23rd 0359Z	
--- Winter FD	January 28th 1900Z - January 29th 1300Z	



Short/Sweet and to the point this month... there are other things going on here too...

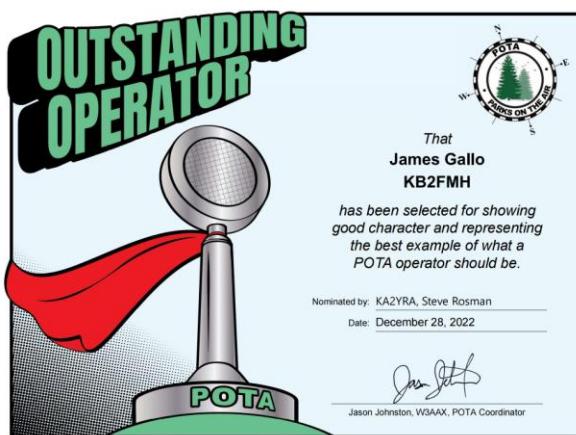
More next month, from Florida and Hamcation in Orlando.



FLARC PortableOps SIG

PortableOps@FairLawnARC.groups.io

This is a Special Interest Group (SIG) for members interested in portable ham radio operation such as POTA, SOTA, IOTA, LOTA, etc. The purpose of this SIG is to get outdoors and practice our operating skills from different places. We can share outing experiences, tips and work on our operating skills.



As we usher in the New Year it is time to review FLARC Portable Operators' contribution to Parks on the Air (POTA) for 2022. Just announced: POTA now has 32,000 members worldwide.

FLARC Portable Operators were responsible for just over 800 activations throughout the year, activating close to 150 unique parks in NJ, NY, PA, CT, MA, RI, OK & AK — accumulating over 48,500 QSOs.

The top 3 FLARC Portable Operators for 2022 were Steve KA2YRA (who did 199 activations at 77 unique parks with 8,233 QSOs), Brian N2BTD (who did 326 activations at 69 unique parks with 16,902 QSOs) and James KB2FMH (who did 168 activations at 37 unique parks with 18,588 QSOs).

James also activated the most rare & remote park K-0143 Alaska Maritime National Wildlife Refuge during his trip to Kiska Island, Alaska as K7K.

Report from Portable Ops SIG, cont'd

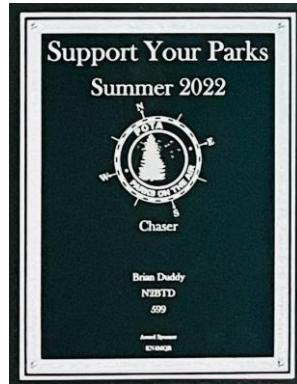
FLARC's top POTA Hunter for 2022 was Brian N2BTD, who hunted an amazing 5,274 unique parks. Brian was the # 2 Hunter in all of POTA for the year and also won 4 plaques in the annual Support Your Parks Summer Plaque Event. [See below]



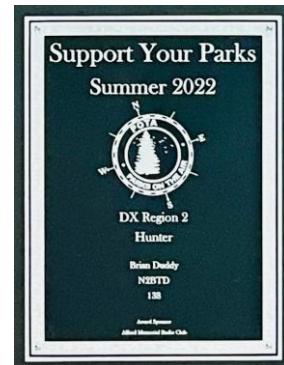
**Most contacts
as a Hunter**



**Most Voice Contacts
as a Hunter**



**Top "Chaser"
as a Hunter**



**Top Hunter
in DX Region 2**

Radio Direction Finding SIG Report

This group will discuss Transmitter Hunting - also known as T-Hunting, Fox Hunting, Radio Orienteering or Radio Direction Finding.



We are starting to plan the next transmitter hunt for the early Spring. Both low power (15mW) for training at the park and then a higher power (1W) transmitter will be via car.

Kits, builds, techniques, and other transmitter hunting information will be on the SIG.

For those interested in joining the Radio Direction Finding SIG subscribe at:

Radio-Direction-Finding+subscribe@FairLawnARC.groups.io



As of January 1 we are at 99 completed member surveys. We are looking for about another 30, to be comparative with 2022.

If you haven't taken the survey yet, please find it here:

<https://www.surveymonkey.com/r/9T7RK6R>

I will be reaching out to you individually as well as we are looking for a high response rate... please support our efforts.

The results will be presented as the March Kawfee Tawk.

— Ed WX2R

Raspberry Pi, 3d Printing and Arduino Special Interest Group Update

Rpi-Arduino@FairLawnARC.groups.io

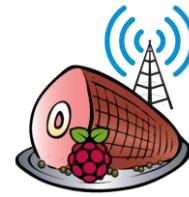
A Special Interest Group SIG for those wanting to learn about and use Raspberry Pi, and Arduino, modules - with special interest, of course, for ham radio projects...and for those who "MAKE" ham stuff.

Not just Raspberry Pi and Arduino

FLARC has a SIG for those who experiment and build Ham Radio equipment or would like to learn. Projects have been posted.



For those interested in joining go to the club website FairLawnARC.org and use the "Join Special Interest Group(s)" link on left.



2022 Member Profiles

Here are this year's member profiles. An index of previous years can be found elsewhere in this issue. All profiles can be found in the newsletter archives on the FLARC website.

Month	Name	Callsign
January 2022	James	KB2FMH
February	Brian	N2BTD
March	Luisa	KD2YWX
April	Ria	N2RJ
May	Telly	WW2SPY
June	Ken	W2SCT
July	Avanti	KC3DZG
August	Norm	KB2JRP
September	Ahmed	W2/HC2AP
October	Mitch	KD2IIU
November	Mike	KD2YEW
December	Robert	KD2SOG

Theoretics Demystified

This time the subject is the history and architecture of the vacuum tube. Last time I wrote about amplifiers and the role and development of vacuum tubes in their very early years. To reiterate, it all started with the Edison Effect, followed by Fleming who discovered rectification. De Forest discovered that by adding a third element which resembles a ladder in structure between the heater and plate which is called a [control] grid. That led to the discovery of amplification [a small voltage at the input controls a larger amount of current at the output]. The voltage drops across a resistor or transformer provided useable amplification. Going forward we will be talking about tube elements and architecture.

In a vacuum tube the least number of elements are a heater and plate; therefore it is called a DIODE. In operation the heater, which is a bare filament which is heated by current passing through which then glows to incandescence and thereby ‘boils’ off electrons which are then able to ‘flow’ to the positively charged plate. If the plate is made negative, then the free electrons surrounding the heater or cathode are forced back to the cathode and no current flows - thereby providing a means of one-way current flow or rectification which then can be used in power supplies or used for detection of radio signals.

This leads us to the heater or [CATHODE]. The raw heater needs to operate at a higher level of incandescence to be effective. A heater enclosed in a thin metal tube [cathode] can operate at lower level of incandescence due to electron emitting materials. Directly heated tubes using wire filaments as the cathode are/were primarily used in battery operated radios, due to lower current requirement.

Heaters with sleeves on the heaters are referred to as cathodes are used in AC powered radios to help prevent AC hum and other applications where special chemicals are used on the cathode sleeves. Cathode sleeves are a thin tube surrounding the heater element and are connected as a cathode in the circuit. Directly heated cathodes are just the filament as the cathode. The cathode is the negative electron emitting element of a vacuum tube.

The next discovery by DE FOREST led to the development of TRIODES, that is a diode tube with a grid [which is called a control grid], which is composed of a set of fine wires arranged in ladder fashion, with the cathode or heater inside and a cylinder of metal or

Theoretics Demystified, continued

plate surrounding the whole works. When the grid is made more negative, less electrons can get to the plate and when the grid is made more positive, more electrons can get to the plate - so that a small voltage change at the grid makes for a large current change in the plate circuit and that is used to provide a voltage drop across a resistor which is used to control the next circuit or provide a useable output to some other device.

In some cases that is a transformer for audio or an RF signal. The grid and plate have inter-electrode capacitance and that is undesirable which led to the addition of another grid called the SCREEN grid and in that configuration the tube is known as a TETRODE.

TETRODES have another grid called the SCREEN GRID spaced between the control grid and plate and provides an electrostatic shield thus reducing the grid to plate capacitance. This capacitance is further reduced by placing a bypass capacitor between the screen grid and the cathode. Another desirable effect of having the screen grid is that the plate current is much less influenced by plate voltage changes.

Next are PENTODES where there is another grid added between the screen grid and the plate. In all electron tubes, there is a condition called secondary emission, where electrons striking the plate, at a sufficient speed, dislodge other electrons that can cause lowering of the plate current and limit the operating range of the tube. This grid is called the SUPPRESSOR GRID and is usually connected to the cathode. The effect of the suppressor grid is to increase the dynamic operating range of the pentode.

Lastly, we have the BEAM POWER tube. In this tube there is sometimes no suppressor grid but then the electrodes are spaced so that the secondary emission from the plate is suppressed by space charge effect between the screen grid and the plate.

In the beam power tube, there are beam confining electrodes at cathode potential which helps control and define electron flow and limits secondary emissions thereby providing more dynamic range and useable power from the tube.

Fred Wawra, W2ABE, 73

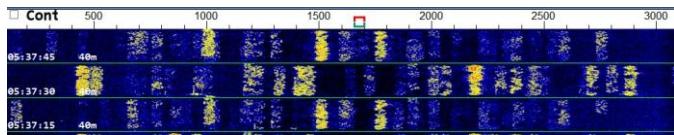
The Pentode Tube



FT8 & Digital Data Modes Special Interest Group Update

FT8@FairLawnARC.groups.io

A Special Interest Group SIG for those interested in FT8 and FT4 digital communications and software.
— report by Jim W2JC



This month I was wondering what topic I should discuss here, and while monitoring FT8 something popped up that might be confusing some new users of FT8/FT4.

For various technical reasons, the decoding is not 100% perfect. Now and then, a decode will come through that might even look legit but isn't.

For instance, the decode that prompted this topic came through as:

`172500 -4 0.1 1975 ~ W2DTR YA7WVF HD09`

This decode looks perfectly legitimate! What drew my attention was that it tripped two alerts in JTAlert: New Country, and New Grid. Don't want to miss those! The country showed as Afghanistan, and I would have started anxiously chasing this station. But the grid square looks a bit suspicious. Also, the lookup that JTAlert does from QRZ.com did not get any info back, making it a suspicious call sign.

What's the best way to confirm this is a faulty decode? Wait for another decode from the same call sign! It's very unlikely that the same error will happen twice in a short time period. Also, it seems like most decodes with /R after the call are false.

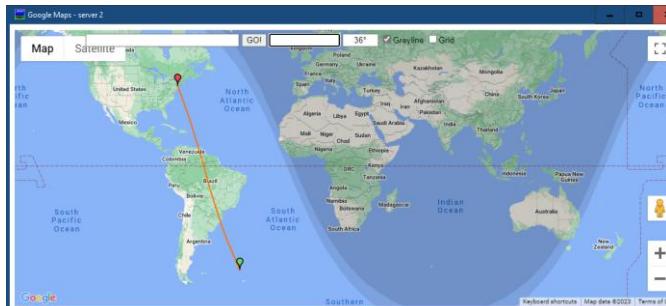
But while we are talking about grid squares, let's do a quick intro to them. Any ham that has been doing and logging HF [or even VHF] QSOs for a while has probably noticed that every ham station has a 'grid square' associated with their location.

A good web page to learn about and look up grid squares is offered by Dave Levine K2DSL, a local NNN ham -- https://www.levinecentral.com/ham/grid_square.php

You can enter a questionable grid square and see where it is on his world map.

Speaking of maps, there are numerous software programs which will directly link to WSJT-X/JTAlert to show the radio path from your QTH to a distant grid square. Since I use PStrotator to control my hex beam heading (same s/w as we are using at the club station), it gets the grid square from the 'DX Grid' of WSJT-X [or JTDX] and can display the dx location on a

nice Google world map (or many other types of maps) as well as turn the beam to the correct direction. Here is where the bogus HD09 grid square from our faulty decode is located —



So that is clearly not Afghanistan !!

WSJT-X Updated

A new version of WSJT-X v2.6.0 was released recently and is getting very good reviews. Some nice changes to the main control page, including buttons to quickly switch between FT8 & FT4, and to switch into 'Hound' mode and back to normal mode with just one mouse click.

A list of all the new features and enhancements is at https://wsjt.sourceforge.io/wsjt-x-doc/Release_Notes_2.6.0.txt

And Windows 10 install package is at

<https://sourceforge.net/projects/wsjt/files/wsjt-x-2.6.0/wsjt-x-2.6.0-win64.exe>

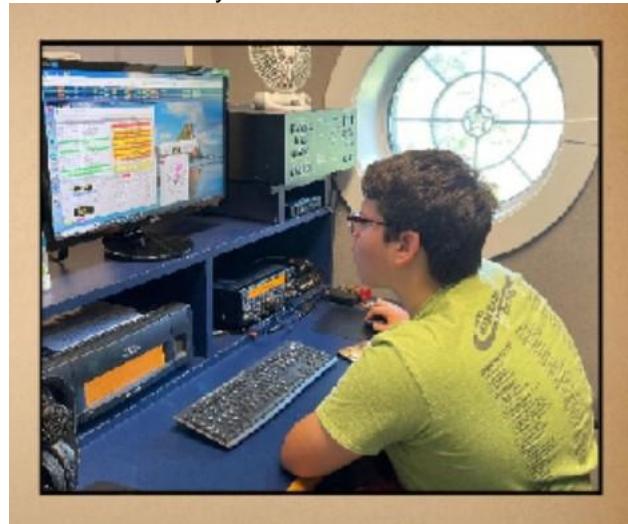
Installation over the older version was seamless!

Join the FLARC FT-8 Special Interest Group –

Just send an email to:

FT8+subscribe@FairLawnARC.groups.io

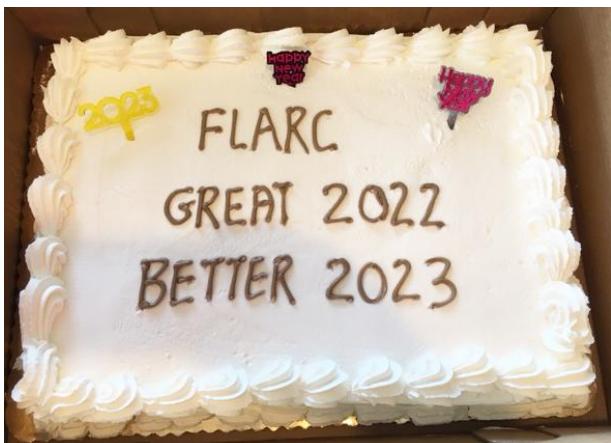
What attracts the youth?



de @arrl: 13 year old Shane Lewis K5SML travelled all the way from Stockton, CA to visit & operate W1AW. Licensed for two years, Shane was busy making FT8 contacts!

FLARC Holiday Luncheon

Nineteen FLARC members and guests took part in a holiday luncheon on December 28th at Mezza Notte Ristorante in Fair Lawn. A great time was had by all as the pictures attest. Thanks to Gene WO2W for putting the event together.





For FLARC membership info
and renewal/application form
please visit:
membership.FairLawnARC.org

FLARC Dues, new and renewal, (and even donations!) can now be made on-line ...

[Please note that this is a temporary improvement while Dave KD2JIP works on a real, full-fledged web page for filling out the membership/renewal form and submitting that and payment on-line.]

Payments can be made using either PayPal or Zelle.

Here's how –

Using PayPal —

Log into your PayPal account at

<https://www.paypal.com>

At top right, select "My PayPal"

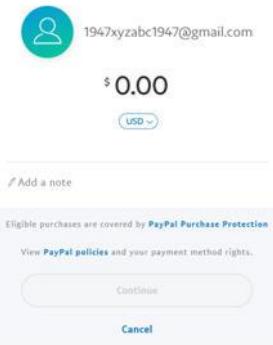
Under Quick links, select "Send Money"

In the window showing
Name, email or mobile number
enter this email address:

1947xyzabc1947@gmail.com

Click on [Next]

Enter \$ amount you
are sending, & in
"add a note" area
type in your CALL
SIGN and which
year (2020 or 2021)
the dues are for, &
any other explanation.



Click on [Continue]

Click on the [Change] button

Click on "Sending to a friend" link

CONTINUED IN NEXT COLUMN —>



Sending to a friend

No fee to use bank or balance to send to
friends and family in the U.S.

You will see a summary of your transaction;
if no changes are required, click on

[Send Payment Now]

to complete your transaction.

\$

Using Zelle —

If you are using Zelle through your bank
account, just send your dues to the following
number: 201-240-9317

Don't forget to add in the note/message
section your callsign and that it is for your 2020
and/or 2021 dues.

OR you can still use a good ol' Check or
Money Order payable to FLARC - always put
your Call Sign and "dues for 2020" (or 2021) on
the check. MAIL TO:

Bruce Kalogera, NJ2BS
163 Meadow Lane
Secaucus, NJ 07094

For a PDF form that can be filled in on-line, then printed and mailed with check, [CLICK HERE](#)



Fair Lawn Amateur Radio Club

*Fair Lawn Recreation and Community Center
10-10 20th Street
Fair Lawn, N.J. 07410*

MEMBERSHIP/RENEWAL FORM

Name _____ Call _____

Address _____ PO Box _____ Ste./Apt # _____

City _____ State _____ Zip _____

Roster Published Phone # _____ Unpublished Phone # _____

Roster Published EMAIL _____ License class: _____

Check all that apply ARRL Member ? RACES Member ? ARES Member ? CERT ? VE ?

Additional Family Members (In same household) --

Name _____ Call _____

Name _____ Call _____

Introductory and Student Membership \$ 20 \$ _____

(Students under the age of 18 eligible for student membership)
(Introductory membership open to new members
or not a member in last 7 yrs)

Associate Membership * (No Fee)

* Open to Fair Lawn Residents Only. No voting rights or other privileges.

Renewal of Current Membership \$ 25 \$ _____

Three Year Renewal Incentive \$ 65 \$ _____

(Single memberships only, family memberships excluded)

Additional Family Members # _____ at \$ 5 each \$ _____

Life Membership \$ 625 \$ _____

Senior Life Membership (65 yrs. of age or over) \$ 250 \$ _____

Equipment Fund Donation, above regular membership dues \$ _____
=====

Total submitted \$ _____

Date _____

I hereby acknowledge the By laws and rules and regulations of the club and will abide by them as amended

Please Note: Memberships are NOT Pro-Rated. Membership is from Jan 1st to Dec. 31st of any given year unless documented otherwise.

Please make your dues check payable to the "Fair Lawn Amateur Radio Club" and remit to the following address:

Fair Lawn Amateur Radio Club

Bruce Kalogera NJ2BK

163 Meadow Lane

Secaucus, NJ 07094

Mail sent to the clubhouse will be delayed due to
Covid. See website for other membership options.

Complete this form for NEW or RENEWAL ARRL membership and give to FLARC Treasurer [Bruce Kalogera NJ2BK] with your payment check.



ARRL Affiliated Club Membership Application

- I am a brand-new member, or my membership lapsed for 2 or more years. My club will receive a \$15 commission.
- I am renewing (includes lapsed members of less than 2 years). My club will receive a \$5.00 commission.

Name _____ Call Sign _____

Address _____

City _____ State _____ ZIP _____

Email _____ Phone _____

Date of Birth ____ / ____ / ____

- My Family Member is Joining or Renewing: (Annually \$10 per member)

Name _____

Name _____

Your Annual Membership Dues -

Circle Your Choice

	3 Years	2 Years	1 Year
US Membership	\$140	\$95	\$49
International (Digital Only)	\$140	\$95	\$49
International (with mailed QST)	\$217	\$147	\$76
Blind	\$30	\$20	\$10
Family	\$30	\$20	\$10
Student			\$25

TOTAL \$

Choose your print magazine -

Check One

- QST**, ARRL's membership journal for active radio amateurs (12 monthly issues)
- On the Air**, Beginner-to-intermediate-level help and advice (6 bimonthly issues)
- Digital Only** (All members can access the digital versions of both magazines)

Payment

Enclosed is my: Check Money Order Charge Request

Charge to my: Visa Mastercard Amex Discover

Card Number Expiration Date

Card Holders Signature

Toll Free (US) 1-888-277-5289 or 860-594-0200 • ARRL, 225 Main St., Newington, CT 06111-1400
membership@arrl.org • www.arrl.org/join

January 2023

FLARC Business Meeting

Fair Lawn Amateur Radio Club
Secretary's Minutes Prepared by Lee KD2DRS
Annual Meeting of January 6th, 2023

The Meeting was called to order by Dave KD2JIP , at the Fair Lawn Recreation Center Card Room and via Zoom video teleconference at 7:30 PM and concluded at 8:56 PM

The Pledge of Allegiance was recited at 7:32PM.

Lee KD2DRS facilitated a roll call and a quorum was established.

President -	David Corsello	KD2JIP
V. President -	David Gotlib	KD2MOB
Treasurer -	Bruce Kalogera	NJ2BK
Secretary -	Lee Smith	KD2DRS
Trustees (3) -	Steve Rosman Fred Wawra Brian Cirulnick	KA2YRA [excused] W2ABE KD2KLN

Opening Remarks by the President Davd KD2JIP

Minutes of the 1/3/23 Board Meeting were read by Lee KD2DRS.

Motion to approve the December, 2022 Business Minutes that are in the Resonator newsletter and the 1/3/23 Board Meeting made by Dave KD2JIP, 2nd by Skip KD2BRV
Motion carried unanimously.

DAVE'S COMMENTS:

Approval of new committees, adding people to our social media committee,
W2JC redesigning the website.
Great auction last month.

VP DAVE KD2MOB - looking forward to working with the Bylaws committee.
JC W2JC has been added. By April or May completion.

Treasurer Report: Bruce NJ2BK

Updated balances.

Auction Breakdown available.

Motion made to accept the Treasurer's report by Bill Leger, WA2WL
2nd Noel Pagan W2MSA Motion carried unanimously.

Continued on next page.

January 2023 FLARC

Business Meeting, continued

COMMITTEE REPORTS:

AUCTION

Bill WA2WL—cannot chair next year due to other obligations

TECHNICAL:

Paul W2IP—in a holding pattern with the antennas on the roof. Submitted pricing. In the spring they will secure and install them. Maintenance on the HF beam - plan to have an outside contractor come in and will work on the guy wires.

Nomar NP4H will be donating antennas. W2JC stated the rotator needs to be refurbished.

MARKETING:

Kawfee Tawks

We have four programs scheduled for 2023.

January 13, 2023	James Gallo	KB2FMH	Bouvet and K7K -- The Kiska Island Dxpedition
February 17, 2023	Ron Block	NR2B	Grounding the Ham Radio Shack
March 17, 2023	Ed Efchak	WX2R	The 2023 FLARC Member Survey
April 21, 2023	David de Coons	WO2X	Understanding and Operating the Flex Radios

Events

- Earth Day at Great Falls National Historical Park – Date TBD
- World Amateur Radio Day Tuesday, April 18
- The Great American Eclipse: October 14, 2023 QSO Party and WSPR participation (Fair Lawn)

Partial solar eclipse visible (22.87% coverage of Sun)
 Magnitude: 0.347
 Duration: 2 hours, 27 minutes, 1 second
 Partial begins: Oct 14, 2023 at 12:08:39 pm
 Maximum: Oct 14, 2023 at 1:22:00 pm
 Partial ends: Oct 14, 2023 at 2:35:40 pm
 Times shown in local time (EDT)

Community Relations

Fair Lawn Street Fairs: June 4 and Oct 15

Other

- West Palm Beach club partnership
 - Ed WX2R will be on program with WPBARG January 25th
- 2023 Member Survey – in the field – please complete it

Continued on next page.

January 2023 FLARC Business Meeting, continued

SOCIAL MEDIA:

report was sent in by Thom W2NZ

RACES / ARES:

Dave KD2MOB reporting: submitted annual RACES report activity with Wed nets, county, ARES-every Wednesday, handful of people checking in at 8PM had a Fox hunt and looking to have another. American Red Cross looking for Hams to help in event of natural disasters. Column in Resonator on the Red Cross opportunities.

WINTER FIELD DAY:

Noel W2MSA reported that 8 people have reached out willing to participate.

Gene WO2W has obtained the permit for Memorial park and arrangements made for the Blowup shelter. Gene offered heaters. 1 or 2 stations with wire antennas. Getting the generator going with Brian KD2KLN. Jan 28th and 29th. JIM N2JLF also has offered a generator. Ridgewood "blow up" shelter is coming.

Brian KD2KLN Made a motion to allow Winter Field Day expenses for food and gas up to \$600.

Fred W2ABE 2nd

Motion was approved unanimously.

GRANT COMMITTEE:

Bruce NJ2BK, due to the fact there are no new tranches announced there is nothing to report.

VE SESSION: no report

WEBSITE:

Jim W2JC, maintaining the site. Looking for experienced web-makers to help improve our website.

OLD BUSINESS:

SPECIAL INTEREST GROUPS:

PORTABLE OPS: [Noel W2MSA reporting]

Brian NB2BD operating, MIKE as a new operator SOTA and POTA, Steve KA2YRA health and welfare. Ross new member met in Morris county They have been joining the group SLACK

SIG GROUPS have until Sunday to be included in the Resonator

MARCH 4TH SUPER SCIENCE SATURDAY at RIDGEWOOD HS

Dave KD2JIP assigned this to the Youth Committee

Jim W2JC stated that we set up an FT8 demo for a street fair in Hawthorne and it worked quite well, and was interesting to younger visitors.

Nomar NP4H was interested in participating.

January 2023 FLARC Business Meeting, continued

NEW BUSINESS:

BUSINESS CONTINUITY:

1. I move that the club develop and adopt a set of business continuity policies and procedures
 - a. These would be designed to ensure that mission-critical functions continue, and mission-critical data remain available during a disruption or a change of officers.
 - b. The scope could include things like:
 - i. Establishing a password-protected cloud repository of essential documents
 1. The password would be known to club officers and other essential personnel and would be reset and redistributed upon a change of officers
 2. Documents could include things like:
 - a. The club's insurance policy
 - b. Passwords to accounts such as domain registration, web hosting, social media and email distribution services
 - c. Editable master copies of the bylaws
 - i. For this, the repository should have versioning and check-out/check-in functionality to allow reverting to old versions and avoid multiple, simultaneous edits
 - d. Other essential documents not specified here
 - ii. Possibly the establishment of club mobile internet and Zoom accounts
 1. Factors to consider:
 - a. Cost
 - b. Frequency of mobile internet use (low frequency would be prohibitive)
 - c. The ongoing availability of existing personal Zoom accounts
 - d. The need for committee chairs to have access to Zoom
 - iii. Formal transition meetings between incoming officers and their outgoing counterparts
 - c. I propose that Nomar NP4H, Jim W2JC, Ed WX2R, and Gene WO2W meet with the board to discuss this over the next couple of weeks.

DAVE KD2JIP made the motion for up to \$1,500/year for a mobile Hot Spot for the club.

Nomar NP4H 2nd.

Motion was unanimously approved.

January 2023 FLARC Business Meeting, continued

SOCIAL MEDIA RESPONSIBILITY:

1. Dave KD2JIP moved that the club establish roles and responsibilities for the Social Media Committee; considering our proposal to bring in a new committee member.
 - a. Dave KD2JIP proposed that Ed WX2R, David NK2Q and Dave KD2JIP meet to discuss.

Nomar 2nd

Motion was unanimously approved.

Dave KD2JIP made a motion that appointed Ed WX2R and Dave NK2Q on board club establish roles for the social committee.

[It was pointed out that the president does not need to make motions to create committees; the ByLaws give the president power to create any needed committees.]

USE OF PERSONAL CALL SIGNS:

David KD2MOB spoke of the use of PERSONAL CALL SIGNS when using the club stations, per Steve Rosman's KA2YRA request.

Dave KD2JIP made the motion:

If the club has not worked a DXCC entity you must work the call with club sign first, thereafter you can use your personal call.

NOMAR 2nd

Motion approved unanimously

Personal:

KA5MLD Joseph Breczinski, is developing a through-hole circuit and looking for help.

Health and Welfare:

Judith sent out several cards in the year of 2022:

10 get well cards. 7 sympathy cards; 2 Get well cards were sent in December.

New Business:

Fred W2AAB stated that he wanted the club to work on a map of our new Repeater coverage. Dave KD2JIP stated he would form a committee for this purpose.

Motion to close the meeting at 8:56PM

made by Lee KD2DRS

Noel W2MSA 2nd

Motion approved unanimously.

Respectfully submitted by Lee Smith, KD2DRS,
Secretary, Fair Lawn Amateur Radio Club
1/9/23



Past FLARC Member Profiles

Here is a list of past member features and we welcome your recommendations for new profiles -- including your own.

Month	Name	Call Sign
January 2016	Pete	KB2BMX
February	Marco	KC2ZMA
March	Ron	KC2TBD
April	Kai	K2TRW
May	Larry	WA2ALY
June	Dave	N8MAR
July	Steve	WI2W
August	Thom	W2NZ
September	Brian	KD2KLN
October	Brad	KM2C
November	Al	WA2OWL
December	George	W3EH
January 2017	Fred	W2ABE
February	Dave	KD2MOB
March	Randy	WU2S
April	Lee	KD2DRS
May	Gene	WO2W
June	Carol	KD2NMV
July	Kevin	KC2KCC
August	Robert	KD2NOG
September	Robert	KD2BKD
October	John	KD2NRS
November	Fred	W2AAB
December	Margaret	W2GB
January 2018	Brian	KD2OAZ
February	Bennett	KO2OK
March	Van	W2DLT
April	Aly	ALØY
May	Bruce	NJ2BK
June	Dave	N2AAM
July	Karl and Susan	W2KBF and W2SKT
August	Steve	KA2YRA
September	Paul	K2PJC
October	Skip	KD2BRV
November	Jim	W2JC
December	Tom	N2AAX

By the way, Randy (WU2S) has compiled a binder of all back issues of *The Resonator* and it's located in the club office.

Thanks Randy!!!

2019-20 Member Profiles

The year is now complete and here is a list of the 2019 monthly profiles. See past profiles elsewhere in *The Resonator* to check back in the archives to see each featured member's background.

Month	Name	Call Sign
January 2019	Dave	KD2JIP
February	Jim	K2ZO
March	Zach	KC2RSS
April	Bob	N2SU
May	Stan	KC2K
June	Steve	WA2BYX
July	Roger	K2RRB
August	Judith	KC2LTM
September	Chris	W2TU
October	Bob	N2SU
November	Bob	WA2ISE
December	Carol	KD2NMV
January 2020	Gordon	W2TTT
February	Chris	KD2JQZ
March	Glenn	KD2MDR
April	Steve	K2SAB
May	Ahmed	NJ8Y
June	Charlie	AC2ZU
July	Jim	N2JLF
August	Walt	K3DQB
September	Gregg	N2ECH
October	Jim	W2KNG
November	Dave	KD2SGM
December	Bill	NB1ILL

2021 Member Profiles

Here is a list of the 2021 monthly profiles.

Month	Name	Call Sign
January 2021	Ed	KD2TVT
February	John	W2USN
March	Noel	W2MSA
April	Gene	KD2VNI
May	Berlotte	KD2MYF
June	Noel	N2OEL
July	Roy	KD2VMX
August	Jeremy	K2GRI
September	Bill	WA2WL
October	Nomar	NP4H
November	David	AC2GL
December	Paul Brennan	N6FB/MØJOV